Manchester Geological Association

Newsletter ~ June 2011

President : Tony Adams PhD

www.mangeolassoc.org.uk

Dear Members,

I do hope that you are enjoying your geological outings this summer. despite the weather... though I managed to have 5 stunning days in the 5W of Ireland in May.

We've several reports of holiday geology this time.. please do keep them coming.

The field trips are filling up rapidly, if you intend to go along on any of the rest, you will need to book in with Jane very soon, there's also a possibility for an exciting trip next year. (see page 7) Reports from the first two outings will be in the September newsletter.

Sadly no one contributed a geological limerick for the newsletter, I tried but failed. However we do have some splendid "verse" from an ex-pupil at St Bede's (see page 4.)

The proposed programme for next winter is on page 8. The December date is still to be confirmed, but there will be more information in September's newsletter.. looks like Jim has a super session for us!

If you already receive by email (or formerly by post) the excellent Geo-conservation Earth Heritage magazine you may wish to take part in the GA consultation on its future. (see page 3)

Well that's all for now folks! Enjoy the summer...

Mary Howie MGA newsletter editor

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Quick Diary 2011

Field Trips		
Sat 16 July	Great Orme and Copper Mines	
26/29 August	Weekend Visit to Cardiff Museum and the Pembroke Coast	
Sat 24 September Sat 8 October	Fred Broadhurst Memorial Field Trip Haigh Hall, Wigan	

Provisional Lecture Programme

Wed 12 Oct - Fossil Molecules -

chemistry as a tool for palaeontology

Sat 12 Nov - The Broadhurst Lectures

Sat 10 Dec - To be confirmed

Sat 12 Jan 2012 - The Fossil Hunters

Marjorie Mosley writes:-

Thank you very much to everyone who purchased rocks and minerals from the late Luise Earnshaw's collection

A total of £163.00 was collected, and at the request of her family, a cheque for that amount has been sent to Cancer Research UK.

Well done Marjorie and Maureen!

The Fred Broadhurst Plesiosaur Appeal

You will be pleased to hear that Percy the plesiosaur will be in his new home very shortly.

The appeal has raised enough funds to cover the cost of a suitable case,

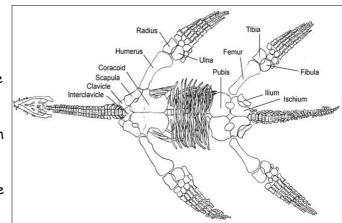
(the MGA has donated £2000 towards it)...

just waiting now for planning approval etc...

.....meanwhile Percy himself swims on.

He is the subject of a recent paper** in which he has been described as a new species of Hauffiosaurus,

Hauffiosaurus tomistomimus, distinguished from the other known species from the Posidonia Shales of Germany by a proportionally shorter neck and strongly concave pre-axial margin of the tibia.



The specimen was found south of Robin Hood's Bay, Yorkshire, in 1960 by a party of undergraduates from Manchester University, led by Fred Broadhurst***. The skull was spotted protruding from a wave-cut platform. Part of the skeleton was removed with ease, but the rest of it had to be extracted on a second visit. It was taken to Manchester Museum for preparation, where it remains on display.

The specimen was originally described as *Macroplata longirostris*, but in this first detailed description, the authors feel that it is distinct from *Macroplata* and more closely related to *Hauffiosaurus* from Holzmaden.

** Palaeontology Volume 54, Part 3, May 2011, pp547-571

New Information on *Hauffiosaurus* (Reptilia, Plesiosauria) based on a new Species from the Alum Shale Member (Lower Toarcian, Lower Jurassic) of Yorkshire, UK

Roger B.J. Benton, Hilary F. Ketchum, Leslie F. Noe and Marcela Gomez-Perez (You can find the abstract on the internet.)

*** Broadhurst, F.M. and Duffy, L. 1970, A Plesiosaur in the Geology Department, University of Manchester, Museums Journal, 70, pp30-31.

Our thanks to Andy Broadhurst and Jim Spencer for this information and very interesting to those of us who visited the Hauff museum in Holzmaden on an MGA trip to Germany.

I was in Fred's WEA class soon after and well remember the dramatic black and white slides of Percy's recovery. He had to be cut out between the tides and stretchered up the cliffs on an improvised sledge, in the winter, in the rain! Good to know that he'll have good and secure home.. Ed.

The MGA is affiliated to the GA and hence we have been asked our opinion on the future of the Geoconservation magazine **Earth Heritage**

The magazines can be viewed on the web if you go to www.earthheritage.org.uk
If you wish to express your views on the future of this interesting magazine please tell

Jane Michael and she will send an email on behalf of the MGA.

(Some MGA members are individual GA members so will know about this)

From the President of the Geologists' Association Membership consultation: possible GA involvement in the continued production of Earth Heritage magazine

Members of the GA and some of its affiliated groups might be familiar with this magazine, which is an outlet for news and views on Geoconservation. Previously this magazine has been produced jointly by the Government conservation agencies and has been distributed free of charge to interested parties, with a circulation of over 5,000, including international destinations. In the present climate of economical restraint the funding stream for Earth Heritage has been cut back, with the result that future issues will be produced as pdf electronic versions only. Even this will not guarantee continued production of the magazine at the present standard of content and layout, so the Editorial Board of Earth Heritage has invited the Geologists' Association to consider becoming a full partner in its production (knowing that the GA has a long-standing interest and involvement in Geoconservation).

The initial proposal envisages a combined management, editorial and funding role for the GA in the continued production of Earth Heritage in electronic form. The suggestion is that two pdf issues would be produced per year and that for £3000 per annum, the Geologists' Association would:

- take up a role in the management and planning of Earth Heritage;
- · have representation on the Earth Heritage Editorial Board;
- · contribute to the content of the magazine, either through provision of agreed articles or through an allocation of page space;
- be able to distribute the pdf versions free-of-charge to all Geologists' Association members;
- · receive electronic versions of all back-issues of Earth Heritage
- have the right to print and sell printed versions of Earth Heritage to generate income for the Geologists' Association.

Thus we might see the magazine as a future outlet for news about the geoconservation activities of GA groups and affiliated societies. We can imagine other positives for the GA, with the wider promotion of the identity and activities of the organization, nationally and internationally. There would be a number of issues to clarify before a formal agreement could be reached but at this stage the GA Council has decided that the views of the wider membership should be sought, to determine the level of interest there might be. Specifically, therefore, I would ask members and representatives of affiliated groups to send written or e-mail responses to the following questions:

- 1. Would you be interested in receiving free pdf versions of Earth Heritage?
- 2. Would you be prepared to pay a small charge (\sim £5.00–10.00 per issue) to receive printed copies of Earth Heritage?
- 3. Would you support future GA involvement in the production of Earth Heritage?

Respond to Mrs Sarah Stafford, Executive Secretary, The Geologists' Association, Burlington House, Piccadilly,London W1J 0DU. Email geol.assoc@btinternet.com or tell Jane Michael and she'll collate responses.

Pete Loader sent us this poem. He says:-

"This was written by one of my students in a detention for not doing his work! It was presented to me in 1987 by the St Bede's College Geology Society (fondly referred to as the REAL BGS). Currently the author is a very successful business man and wishes to remain so! "

Agnostus' Tale by A O'B

I'll tell you a tale of *Agnostus*, A trilobite skinny and small, Who spent all his life bumpin' into things,

Cause he hadn't got no eyes at all!

Now, *Agnostus* he were a little chap, 5mm from his head to his toe, And in lapetus he burrowed around, Not seeing where he should go.

It were Cambrian time period in Britain, An' folks were few, far and between. Brachiopods, corals, some sponges Were mainly all to be seen.

In those days the UK were divided,
The North and South split, it were clear;
The North had all the swinging, young rockers
Whilst the South just had flat, lousy beer.

Now feelin' alone and dejected Agnostus decided a quest – To search out a loving companion And together set up a love nest.

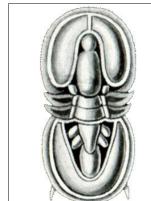
He'd heard of *Paradoxides*, A lady with long pleural spines, And was determined that he should meet her,

With seismic ideas on his mind.

But *Paradoxides* lived up in North Scotland

And from the South that's an ocean away; Two thousand miles were between them (and without the M1 motorway).

So leaving the Irish Sea Platform, From Eurasia *Agnostus* set forth, To dig the first channel tunnel, Avoiding the Midlands of course.



Propelled by turbidity currents

Agnostus was borne on his way.

Off t'shelf, down the rise, and, despite lack of eyes,
He reached t'abyssal plain by midday

He journeyed past seamounts and guyots, Though these were last on his mind,

With no worry of nodules and oozes, As he missed 'em because he were blind.

By 530 Ma he reached t'other side, After scaling the Mid Ocean Ridge. It were mad to burrow through hard basalt rock. Why hadn't he thought of a bridge?

Upon reaching t'shores of North Scotland, *Agnostus* began t'search for his mate.

But, alas, he just couldn't find her.

Trust a woman to be late for a date!

He sought her here, he sought her there,
He sought *Paradoxides* everywhere.
Was she in Devon? Or up Scafell?
That darned elusive tinkerbell.
(Well you try rhyming something with Scafell!!)

At last after two months of searching, He reached *Paradoxides* lair, And entered in anticipation But, paradoxically, found she weren't there.



Ordovician superseded the Cambrian, And time for *Agnostus* was short.

Paradoxides died out in mid-epoch.

Would he be the next to be caught?

The journey back home it went smoothly.
Yes, surely at last he were home.
But he spoke much too fast and was gone in a flash,

Shot straight down a subduction zone.

The moral of this tale, it is simple.

After studying Geology for nigh on two years,

We still don't know much about fossils and rocks......

But you can't tell us 'owt about beers!

The Geology Department at St Bede's wishes to disclaim any part in the erroneous geological knowledge of its students or, indeed, any geological knowledge at all !!

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Recipe for a pothole...

We are now all very familiar with the pot holes in our roads caused by last winter's the recent cold weather... freeze/thaw plus vehicular vibrations... but there are others to be found in rivers and streams. Ann Phillips has been to Jasper in Canada and was impressed.. or perhaps worried.. by the retreat of the Atabasca glacier.



She was also intrigued by the pot holes formed in the glacial outwash stream beds.

So intrigued that she took these photos for us!





The display board reads :-

Recipe for a pothole

First trap sand or gravel in a depression.

Add water that whirls it around and around, scouring the bedrock.

Leave until the depression deepens and becomes rounder.

The pothole is done when the water changes its course.

Look for pot holes either side of the bridge and on the lower trail.

Thanks Ann.... anyone else got some Holiday Geology for the newsletter? Ed.

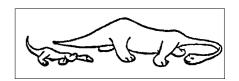
The next newsletter will be in September Copy to me by August 31st please. Mary Howie - newsletter@mangeolassoc.org.uk or Snail Mail to Kinder View, 118 Glossop Road, Marple Bridge, Stockport SK6 5EL. Tel: 0161 427 2965

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

Did you know that you could view PDF colour versions of our newsletters on the MGA website?

The website is also useful to advise of any of last-minute changes to events.

MANCHESTER GEOLOGICAL ASSOCIATION OUTDOOR EVENTS 2011



DATE 16 July 2011

Venue: Great Orme and Copper Mines

a joint excursion with the OUGS

Leader: Dr Jacqui Malpas

Time: 10 am

Description: We plan to visit Bishop's Quarry with its fossils &

folds & the limestone pavement at the top of the Orme.

Please book with Jane Michael for this trip.

Contact: Jane Michael



The Great Orme

DATE 26 – 29 August 2011 Long Week-end Visit

Venue: Cardiff Museum and Pembroke Coast Leaders: Dr Cindy Howells and Dr John Nudds

Description: The party will travel to South Wales on **Friday** morning, breaking the journey

at Cardiff for lunch and an opportunity to view the 'Evolution of Wales' Gallery in the National Museum of Wales. We will travel onto Pembrokeshire in the late afternoon,

arriving in time for drinks and dinner at the Old Kings Arms in Pembroke.

Saturday will be spent on the North Pembrokeshire coast where we will see the classic Cambrian deposits

of St David's and the famous Ordovician graptolite locality at the blue lagoon of Abereiddau Bay

(swimming optional!).



West Angle Bay

On Sunday we will travel to South Pembrokeshire where we will see the Silurian and Devonian Old Red Sandstone at Manorbier and Freshwater West, and the Lower Carboniferous at West Angle Bay. We will be examining palaeontological and sedimentological evidence in an attempt to reconstruct the palaeoecology and palaeogeography of this area through the Palaeozoic.

We will travel back to Manchester on **Monday morning**, and those that wish can again break the journey, this time at Barry Island, where we can continue our stratigraphic traverse by visiting the classic dinosaur footprint locality in the beds of the Upper Triassic.

Arriving back in Manchester early evening on Monday.

There are still two or three places left on this trip, but all the rooms are now taken in the hotel in Pembroke, so members would need to book their own accommodation .

If you would like to come along on this trip please contact Jane Michael ASAP.

DATE 24 September 2011

Venue: Fred Broadhurst Memorial Field Trip

Leader: Jane Michael Time: 10.30 am

Description: This year's trip will be based round Rocky Ramble Walk 17: Rowarth to Cown Edge. This is a walk of around 10km (6 miles) with 250m (800 ft)

of ascent some of it fairly steep.

We will be looking at faults, folds and landslips with some stunning views as well.

Contact: Jane Michael Booking ASAP is essential for this trip

DATE 8 October 2011

Venue: Haigh Hall Country Park, Wigan

Leader: Chris Arkwright

Time: TBA

Description: A visit to sites within the Lancashire Coalfield, including some RIGS.

More details in the September newsletter.

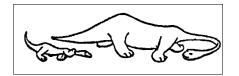
Contact: Jane Michael if you wish to come along.



Cown Edge

America beckons..... proposed MGA trip in 2012

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



We would visit some well-known sites in the Upper Jurassic Morrison Formation including the type locality at Dinosaur Ridge, and the notorious Como Bluff, scene of the infamous 'Bone Wars' between Marsh and Cope in the 1880s. Laramie Geological Museum displays some fine



Fossil Butte

skeletons from these localities. We would also have field and museum visits to see the White River Group (Eocene - Miocene early mammals), and the Green River Group (Eocene), famous for its fossil fish and early horses. If time allows we might also travel to Rapid City in South Dakota to see the original specimen of 'Stan' the Tyrannosaurus, and have a beer with the Larson brothers, well-known dinosaur hunters and collectors of 'Stan'. If

so, we will also visit Mount Rushmore to see the presidents' heads carved in granite. A traverse

over the Big Horn Mountains (Precambrian to Cretaceous) will take us to the lazy cowboy town of Ten Sleep where we can visit a private dinosaur dig if the weather allows (off road driving).

And - Germanophiles and palaeo-twitchers will not be disappointed -

Mount Rushmore

we can even see the 10th specimen of Archaeopteryx on display at the

Hyracotherium sp.

Wyoming Dinosaur Center in Thermopolis, followed by a relaxing bathe in the thermal springs. Who could resist all that! 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 will be limited. First come-first served!!

You will need to contact our Outdoor Organiser Jane Michael if you intend to come on any of our field trips. She will then send you details of time and place etc.

Jane Michael tel.....07917 434 598 email... outdoors@mangeolassoc.org.uk

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.



Provisional Programme of Indoor Meetings 2011-20112

Wednesday 12^h October 2011 – Fossil Molecules – Chemistry as a tool for palaeontology

Whodungit?
Dead in the Water

Dr. Fiona Gill, University of Leeds Dr. Jo Hellawell, University of Bonn

Saturday 12^h November 2011 – The Broadhurst Lectures The Coal Measures

Rates of Sedimentation in the Namurian and Westphalian: A Review -

Dr. Derek Brumhead MBE, MGA

Trace Fossils of the Carboniferous Coal-Bearing Rocks: 160-Year Manchester Heritage - Dr. John Pollard, University of Manchester

The Rise and Fall of the Coal Forests -

Dr. Howard Falcon-Lang, Royal Holloway, University of London Coal Mining in Lancashire, the Photographic Record -

Alan Davies, formerly Curator, Lancashire Mining Museum

Saturday 10^h December 2011 – To be arranged and date to be confirmed

Saturday 14^h January 2012 – The Fossil Hunters

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

two very different 'monster' fossil hunters - Professo

James Powrie -

Professor Hugh Torrens, University of Keele Bob Davidson, University of Aberdeen

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

Dr. Cindy Howells, National Museum of Wales

Wednesday 15^h February 2012 – AGM followed by Presidential Address
Dr. Tony Adams, University of Manchester

Wednesday 7th March 2012 - Date to be confirmed

Natural Hazards in the Caribbean: Causes and Impacts

Dr. Servel Miller, University of Chester Joint Meeting with the Geographical Association, 6.30pm

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

More details of these lectures will be in the September newsletter.

Using the Moine Excursion Guide: an excellent alternative to climbing high in rotten weather

I have recently had a week in Scotland near Fort William with friends. It's our usual Scottish walking week. However, the weather was absolute rubbish - it rained every day, clouds were almost at loch level and so going high was not a thrilling option - for me anyway! So after a couple of days of getting soaked boots, I suggested to my partner, Don, that we could do some geology. We had already spent half a day before we got to Fort William following one of the trips in Jack Treagus' Excursion Guide to the Dalradian and, since we were based in the Great Glen, I'd also taken the Excursion Guide to the Moine Geology of the Northern Highlands of Scotland with me (along with bird, flower, tree, mammal and other rock books!).

We decided to follow part of the Glenfinnan to Morrar trip and so took the 'Road to the Isles' - the Mallaig road, passing between the railway viaduct and the Glenfinnan Monument to find the first exposure - a layby. Fortunately we had a GPS to make sure we got the correct one!! Once we had the right start point the others followed as per the book!!

The geology we were looking at comprises the Glenfinnan group psammites, pelites and migmatitles with pegmatites and some microdiorite sheets thrown in for good measure. As the authors of this excursion say, the area is structurally complex! It is part of the Northern Highland Steep Belt and what Don and I mainly looked at

were the metasediments with tectonic structures.



Several phases of deformation.



Initially at the first exposure everything just looked grey: not helped by poor light (though it wasn't raining at that point) and vegetation covering some of it. However, once you got your eye in you could start to see the structures - some large folds - especially from the far side of the road. Once we got up close and personal the smaller folds became apparent together with cleavage and I was able to identify (as indicated in the book) several stages of deformation. There was a lot of mica clearly visible (both biotite and particularly muscovite) - and collectable! The guide indicated garnets could be found - now I love garnets so I was looking particularly for them but I left empty handed!! We even found the boudins mentioned at locality 3.2 which was a great thrill as I had been trying to explain boudinaging to Don

(who is not a geologist). It is so much easier when you can see them!! (see over)

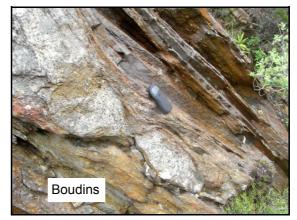
We had a great morning exploring just a relatively short length of road. The geology was great, it didn't rain until we got back into the car and I had proved to myself that the Excursion Guide was very good,

easy to use for an amateur and I would recommend it to anyone going to that part of Scotland.

Jane Michael (who took the photos)

An Excursion Guide to the Moine Geology of the Northern Highlands of Scotland: Rob Strachan, Ian Alsop, Clark Friends and Suzanne Miller, National Museums of Scotland £17.99 ISBN 978-1-905267-33-0.

(It has always amused me that "boudin" is French for "sausage" and related to our word "pudding"...Ed.)



Not exactly a "Holiday" but our Treasurer has been to Cardiff Senedd and writes:-

While on a business trip to Cardiff I was taken on a tour of the Welsh Assembly Buildings or Senedd on Cardiff Bay. An impressive glass and wood structure which is effectively transparent.

On the tour I was quite taken by the art work commissioned to decorate the building. In particular fabric covered acoustic panels which adorn each wall and essential to stop every conversation sounding like it's taking place in a public lavatory! The artist Martin Richman was inspired by the geology and topography of Wales.

d on approximately 270 of the 600 or so panels

An average panel measures around two metres high by a metre wide, and the artist has worked on approximately 270 of the 600 or so panels in the building.

Each panel is made up of a timber frame enclosing acoustic absorption material, covered by



a stretched acoustically neutral fabric. The artist worked with the architects and panel manufacturers to choose a suitable fabric for these 'canvasses', and the material was supplied to the artist marked on a room by room, and panel-by-panel basis. This enabled the artist to create a unique set of panels for each location.

The artist's comments :-

"The treatment of the sound proofing panels became a means of introducing colour into the new building without compromising the build process. The imagery evolved from a sense of



suppressed energy emanating from Wales. The geological strata and mineral deposits have given Wales its particular character, providing a wealth of culture and commerce.

The Senedd building is designed so that the debating chamber is below ground and I thought there was an analogy to be drawn between the energy of debate in the new Wales and potential energy inherent in the landscape. The panels may suggest the seepage and percolation of suppressed energies being released."

Although you have to go through airport like security gates, the building is open to the public without appointment.

Niall Clarke

(Looks a fascinating building and good to know that Geology is inspiring art in Wales ..Ed)

Footprints in the sands of time.....

Fossil Trackways on Valentia Island



Tetrapod Trackway of one of the first creatures to come out of the sea onto land... the footprints are in Devonian Sandstone (385Ma). The track way has been shortened by pressure during the Hercynian Orogeny. The creature was about 1.5 m long and looks like a giant newt on the display board!



Myriapod footprints in Devonian siltstone on rocks by the Cromwell Lighthouse. Again the tracks have been shortened by sideways pressure. The creature was probably like a giant centipede ~ 10 cm long.

No, it's not in Spain, but off the SW coast of Ireland...and featured every night in the shipping forecast.. I went there with the OUGS in May .. Mary Howie

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 secretary@mangeolassoc.org.uk

Membership Secretary Lisa Abbott 8 Borrowdale Crescent, Didsbury, M/cr,M20 2XU,

> 07789 767732 membership@mangeolassoc.org.uk

Treasurer Niall Clarke 07785 778 250 Indoor Meetings Organiser Jim Spencer 0161 434 7977 Field Excursions Organiser Jane Michael 07917 434 598 News Letter Editor Mary Howie 0161 427 2965 Web Site Peter Giles mangeolassoc.org.uk RIGS Group Marjorie Mosley gmrigs@hotmail.com

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)

MGA email addresses :-To contact our President or Membership Secretary email membership@mangeolassoc.org.uk

> for Sue Plumb MGA General Secretary secretary@mangeolassoc.org.uk for Jane Michael and field visits outdoors@mangeolassoc.org.uk for Jim Spencer and indoor meetings lectures@mangeolassoc.org.uk for Mary Howie and the newsletter newsletter@mangeolassoc.org.uk

Other Societies

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

Black Country Geological Society

Sun 7 Aug: The Woolhope Dome with Woolhope Naturalists' Field Club leaders, Mordiford. Meet at SO 5780 3853 11:00am,

Contact andrew_harrison@urscorp.com

Lancashire Geological Association

No details at present

Contact Jennifer Rhodes s_j_rhodes@hotmail.com

Leeds Geological Association

3 July 2011 Building Stones of Central Leeds

Murray Mitchell (retired) BGS

7 July 2011 Black Rocks, Wirksworth area, Derbyshire

Ian Chisholm (retired) BGS

17 Sept Thornwick Bay, N Landing and S Landing

Mike Horne

Residential Weekend -30 Sept - 3 Oct Friday - Sunday

Grange-over-Sands, Cumbria

Contact anthea.brigstocke@zen.co.uk

Liverpool Geological Society

No more field meetings this summer. Oct 11th Presidential address

Contact Joe Crossley 0151 426 1324

North Staffs GA

Saturday 9th July 10:00 Weaver Hills

led by Dr Patrick Cossey (Staffordshire University)

Contact Eileen Fraser frasers@netfraser.me

Oldham Geological Society

Sat 18 July Loggerheads Mold 10.30am Wed 20 July Smithybridge Littleborough 7.30 pm Sun 14 Aug Speeton North Yorkshire 10 15 am 01457 874095 Contact Jo Holt

Open University Geological Society NW Branch

July 16th Great Orme (with MGA)

Sept 11, Skiddaw Granite and thermal metamorphism

with Rosemary Vidler

Jane Schollick 01704 565 751 Contact

Russell Society (mineralogy)

The North-West Branch - meets in the Warrington area. Contact Alan Dyer on 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.

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