

# Bulletin

## Number 74

### July 2005



#### Programme

### Field Excursions:

#### Saturday 16 July: Hawkstone Park

Leader Chris Rayner of Shropshire GA  
This field trip is now fully booked

#### Sunday 7 August Wenlock Edge

Leader: David Ray  
Start 10.30am

Aim: to investigate variations in the reef tract sediments of the Much Wenlock Limestone Formation (plus the over and underlying Farley and Elton members). This will be a fossil collecting trip with 2 or 3 stops (Farley Road Cut, Farley Quarry and Lea Quarry).

#### Sunday 11 September Lathkill Dale

Leader: Dr Fred Broadhurst

Start: 10.30am at parking area on B5055 (SK157664) about a mile east of Monyash  
Carboniferous limestone and fossils. This will be a walk of 6 to 7 miles, classed as mostly easy.

For more information about the field trips please contact  
Elizabeth Hallam ☎ 01260 275616 [k.hallam@virgin.net](mailto:k.hallam@virgin.net) or  
Eileen Fraser ☎ 01260 271505 [fraser@fraserco.co.uk](mailto:fraser@fraserco.co.uk)

### Talks:

#### Thursday 13 October

#### The Archaeology of Lead and Copper Mining in the Peak District

Dr. John Barnatt

7.30pm start, School of Earth Sciences and Geography, Keele University

#### Abstract -

This talk will be a presentation in two parts:

- A lecture that will briefly first introduce the history of metal mining in the Peak District and the varied archaeological, geological and ecological resource that survives today, together with initiatives for its conservation. Following this several archaeological projects will be summarised, including surface archaeological excavations at How Grove on Dirlow Rake and at High Rake near Great Hucklow; underground assessment at the Ecton Mines and at the caves/mines in Northern Dale near Wensley; and the ongoing research project into pre-gunpowder mining using firesetting, using coal as fuel, at metal mines across the orefield.
- A 25 minute video on the ongoing High Rake Mine excavation and conservation project by the Peak District Mines Historical Society conservation team. This started in 2000 and was filmed by David Webb last year - it is anticipated that work will continue into 2006 before this ambitious project is complete. The video includes a tour of

the surface excavations and dramatic footage of the exploration of the 220m deep engine shaft.

## Thursday 10 November

### The Earth - An intimate History

The Big Earth Science Picture, a life story of our planet

Prof Richard Fortey FRS (Natural History Museum)

This is a *Geologists' Association Regional Lecture* and the *Fifth Wolverson Cope Memorial Lecture*

#### *Admission by Ticket only meeting*

- The meeting will be preceded by a **buffet** in William Smith Building, School of Earth Sciences and Geography, Keele University at 6.30pm. This will be **free** to Geologists' Association and Affiliated Group members; non-members £3.00.
- The Lecture will be in the Huxley Building, Keele University and starts at 7.30pm. It is free to all but entry only by ticket booked in advance. [Booking Form](#)

If you would like tickets and a campus map they can be obtained from

Carol Fereday 01782-713227

or e-mail [carol@burnett40.freeseve.co.uk](mailto:carol@burnett40.freeseve.co.uk)

before 25 October 2005

### Fieldtrip Review - Anglesey Fieldtrip 20 – 22 May 2005 - A non-technical treatise!

Saturdays! These are usually spent shopping, cleaning the car and mowing the lawn. However this particular Saturday saw a group of 30 of us wandering around the coast of Anglesey in the sunshine, peering at rocks and debating the origins of the planet, the Universe and our part of the world.

It did not start out fine and warm, in fact as we left the Gadlys hotel at Cemaes Bay there was a distinct lack of enthusiasm to get anywhere very quickly as the rain lashed down on the cars. At Rhoscolyn Bay we all booted up and put on our wet weather gear. As the tide was still fairly high we had an excellent tutorial from Dr Ros Todhunter, our leader for the weekend, who explained the geology of the area and talked about the late Precambrian Mona Complex which comprises turbidite deposits of psammites and pelites within the greenschist facies. Later that day we were to see massive white quartzite beds and at South Stack lighthouse tightly folded metamorphosed sediments of the South Stack formation.

We proceeded along the beach at Rhoscolyn and then using a footpath through someone's private garden we headed up onto the headland and suddenly the sunshine came out and stayed with us for the rest of the weekend. We examined the beds in the light of a tight overturned limb and then spent some time debating the geology of the area. As usual where geologists are gathered together there were at least 10 different opinions that were hotly debated, each convinced they had found the solution. As we know geology is not an exact science!

Having walked up to the viewpoint we then proceeded downhill to another headland to look at the cliff opposite where we could see the junction between the Holyhead quartzite and the South Stack Formation. A traverse around the coastal footpath brought into view some isolated massive red deposits that have yet to be explained. A walk inland across fields brought us back to the car park from where we moved on to South Stack for a late lunch. Those who felt up to the challenge walked down the 400+ steps to South Stack island where a lighthouse protects this dangerous part of the coast. We admired the tightly folded and crenulated bands of sandstone which showed isoclinal folds and axial cleavage. We then climbed back up to the top. One unfortunate member who shall be nameless left his rucksack on the island and had to retrace 800 steps. What a penance for enthusiasm!

The last location of the day was near the hotel at Cemaes Bay in the Gwana Group melange where we examined stromatolites in a limestone megaclast. A walk round the coast brought us to the 5<sup>th</sup> century church and an outcrop that looked like limestone but failed the acid test, and a view of the unconformity between the Mona Complex and the overlying Ordovician beds. It was then back to the hotel for another wonderful meal and a convivial evening in the bar.

Sunday started very cool as we all met at the car park on Parys mountain. We walked round the Heritage Trail and tried to envisage what it would have been like to work with only a pick and shovel, scaling rope ladders into narrow mine shafts. It would have been very dangerous work and not to mention the hazardous nature of the deposits which were being mined which included not only copper, lead, zinc, gold, silver but arsenic as well. The area worked was very extensive and was thought to be as a result of exhalative mineralization from 'black smokers' that arose from island arc volcanic activity in the Late Ordovician.

From there we drove to Red Wharf Bay and as the tide was still high had time to sample the local pub, only so that we could justify having used their car park of course. We then had a wonderful walk along the beach looking at outcrops of Carboniferous limestones, quartzite and breccias. We finally arrived on a wave cut platform of limestone with potholes at least 1-2 metres across which had infill deposits of eroded sand bodies. This started a very interesting discussion on whether the sea had risen or fallen, or whether these features were mechanically drilled by large pebbles or boulders or due to solution erosion. Everyone had a

theory of their own and we all felt that further investigation was needed, but we also found some evidence of horizontal burrows and corals so felt that a marine environment had an input somewhere along the line.

The last location meant a drive to Newborough Warren, where a walk through the woods brought us out to a spectacular beach populated by peculiar looking rocks. On examining these they were found to be superb examples of deep water pillow lavas with jasper and quartz infilling the gaps. We could have stayed there much longer debating the origins of these and their relationship to the associated pillow breccias and basic tuffs but the trip was drawing to a close.

We all left very reluctantly and can only give huge thanks to Ros and her husband Rocky and daughter Helen for making our weekend such a wonderful experience. Ros's enthusiasm for geology, together with her brilliant explanations with so many clear diagrams and maps, and insistence that we should try to work out for ourselves what we were examining, made the whole weekend a learning experience which has left me wishing to know so much more about the area. It was lovely to be amongst like-minded people and above all it was great fun. Thanks to everyone who came.

Eileen Fraser

## **Wren's Nest Through the Seasons - Photographic Competition**

All enthusiastic photographers are invited to enter into a prize competition to celebrate the 50th anniversary of Wren's Nest National Nature Reserve. A calendar is to be published for 2006 featuring twelve photographs of the Wren's Nest through the seasons.

Entrants can submit up to four photos each, as prints, slides or on compact disc, in colour or black and white. However, entries cannot be accepted by email and photographs must not be subject to manipulation including but not limited to the combining and retouching of images.

The competition is open to UK residents only. Employees of Dudley Council and its partners working in connection with Wren's Nest NNR and their immediate families are not eligible to enter.

**The closing date for entries is August 31st 2005.**

Entries should be sent to: Kevin Clements, Countryside Manager, Dudley Council, Culture and Community Services, Claughton House, Blowers Green Road, Dudley, West Midlands. DY2 8UZ.

[Entry rules on-line](#), or telephone 01384 814189. Alternatively, visit the website [www.dudley.gov.uk/about/envirom/country/rules.htm](http://www.dudley.gov.uk/about/envirom/country/rules.htm) and download a copy.

## **Fieldtrip Review - Wood Lane Gravel Pit 16 April 2005**

The North Staffs Group of the Geologists' Association visited Wood Lane Gravel Pit on 16th April this year. 17 members arrived at 10:30am at the headquarters of the Tudor Griffiths Group and were met by Mr Peter Mold, the site manager. Wood Lane Quarry lies just south of the market town of Ellesmere in North Shropshire. It has been a working quarry for about 60 years. The Tudor Griffiths Group is a large supplier of construction and building materials and this quarry provides sand and gravels for many industrial uses. We were given a very informative Visitors Guide that succinctly described the gravel quarrying and waste management operations and the subsequent restoration of the depleted workings as pasture lands and wildlife habitats.

It was a windy, cold and overcast day and we all needed pullovers and anoraks. We climbed into a 'wagon' pulled by a four-wheeled drive vehicle. We drove through the processing plant, seeing piles of different sized gravels on each side. We did not stop here, but were told that the quarry material was sorted into sand and different sizes of gravels ranging from about pea-sized up to about one-and-a-half inches across. During this process of sorting the different sized gravels were washed by water, which was then pumped away to settlement lagoons created from the older depleted workings. These water bodies attracted much wild life, mainly migrating birds.

We were then driven to the active tipping area, where waste material brought in by lorry was being spread out as a thin layer and compacted by a very heavy purpose built machine with steel toothed wheels. Peter Mold told us that this landfill area was first given an impermeable clay lining before any waste material was deposited and consolidated. When filled, the area will be sealed with more clay for restoration to agriculture. This area is frequently monitored by the Environmental Agency to ensure that no harmful gases or liquids resulting from decomposition escape into the surrounding environment. At this site, no active chemical waste is allowed, only domestic and builders' waste is brought in, which is mainly 'inert' material. It was very cold from this viewpoint, and we were glad to move downhill to the next stopping point!

This was the waste recycling facility, where the waste was sorted to remove recyclable materials before burial as landfill. It was very interesting here to see that there was a shed with three or four men actually hand sorting the waste material that was passed through on a conveyor belt. They were sorting into wood, metal cans, bottles, and other recyclable waste.

We were then driven to the current extraction area, where we viewed the glacial deposits that were quarried on working days. Here Mr Peter Mold left us for his Saturday lunch.

We spent some time in this place, which was more sheltered than the previous sites we had visited. We found a great variety of rounded, sub-rounded to angular pebbles and cobbles. Many were recognisable as of igneous or metamorphic composition - some appeared to be of Welsh origin, and some of Scottish or possibly of Irish origin. Also there was material such as limestone and sandstone, generally more angular, indicating a much nearer source, probably from nearby Carboniferous and Triassic rocks.

The sand and gravel deposits result from the glacial age, which came to an end about 12,000 years ago. Glaciers from Scotland and the Irish Sea area and also the Welsh Mountains moved south-eastward, grinding down the mountains they passed over, carrying loads of rock fragments. It was in the region of North Shropshire that the glacier fronts arriving from different directions met. The terminal moraines left behind as the glaciers melted back from their maximum extent not far south were thus a great mixture of rocks from different areas. Subsequent re-working of the terminal moraines by glacial meltwaters resulted in the formation of fluvio-glacial deposits, or outwash sands and gravels as they are often described. These are the beds now quarried at

Wood Lane. Features we saw which showed clear evidence of deposition by flowing water included cross-bedding, alignment of elongated pebbles 'en echelon' (imbrication) in a sandy matrix, thin discontinuous laminated clays, and of course the rounded to sub-rounded shape of many individual pebbles. Some small-scale intraformational deformation within these unconsolidated sand and gravel beds was observed.

To complete the trip, we walked to one of the bird life observation hides, where we could see all the various areas that had been restored for a wildlife habitat. School groups also used this large hide, to observe the birds and to learn about the wildlife of the area as we could see from the many drawings that adorned the walls. Just outside this hide, we listened to the story of the 'talking rocks'. By pressing a button, a circle of rocks, in turn, spoke of their Welsh, Irish and Scottish origins in appropriate accents. And this is where we ate our picnic lunch before returning to the relative warmth of our cars for the journey home.

Gordon Hillier

## John Myers Report June 2005

The John Myers Awards assessment panel, comprising John Reynolds, Colin Exley, David Thompson, Peter Floyd, David Osborne and Mike Fereday met at Keele University on 15 June 2005 to assess the projects submitted by Keele and Staffordshire Universities. After deliberation the panel decided to make the following awards:

### **Keele University:**

**Winner:** To be awarded a cheque for £100 and the John Myers Medal.

*Frances Russell*, a 4-year MGeoscience undergraduate for her work on "A Shallow Surface Geophysical Examination of Old Hall Farm Keele".

**Runners up:** Each to be awarded a cheque for £20.

*Sally Higgins*, a 4-year MGeoscience undergraduate and

*Victoria Lane*, a 3-year joint honours (Geology and Computer Science) undergraduate.

### **Staffordshire University:**

**Winner:** To be awarded a cheque for £100 and the John Myers Medal.

*Andrew Jones*, a 3-year Applied Geology undergraduate for his work on "A study of the hydrogeology of Titley, Herefordshire with particular reference to a domestic well situated at Turning Ways Farm".

**Runners up:** Each to be awarded a cheque for £20.

*Adam Phillips*: a 3-year Applied Geology undergraduate and

*Matthew Green*: a 3-year Applied Geology undergraduate.

The awards ceremonies took place on 5<sup>th</sup> July at Keele and Staffordshire Universities.

Mike Fereday

## NSGGA - Next Committee Meeting

- **Thursday 15 September at 7.00pm**  
in the School of Earth Sciences and Geography, Keele University

## Staffordshire RIGS Group

For details about the Group and meetings, contact:

### **SRIGS Secretary: Ray Robinson,**

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email: [rayrobinson99@hotmail.com](mailto:rayrobinson99@hotmail.com) or [ray.robinson@astrazeneca.com](mailto:ray.robinson@astrazeneca.com)

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### **Secretary: Eileen Fraser,**

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### **Field Sec.: temporary**

please contact Secretary **Eileen Fraser** (above) or **Elizabeth Hallam** 01260 275616

### **Conservation Sec.: Keith Harrison,**

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☎ 01782 232323 email: [don.steward@stoke.gov.uk](mailto:don.steward@stoke.gov.uk)

**Executive Committee (honorary):**

**Dr. Colin Exley; Terry Jones; David Thompson; Ted Watkin.**

**Executive Committee (elected):**

**Lloyd Boardman; Elizabeth Hallam; David Osborn;**

**Janet Osborn; John Reynolds; John Winchester**

**Executive Committee (co-opted):**

**Janet Fairclough**

**Vanessa Pilley (Keele Geol. Soc)**

**Roger Clowes**

**Why not visit the NSGGA web pages: [www.esci.keele.ac.uk/nsgga](http://www.esci.keele.ac.uk/nsgga)**

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**Anglesey Fieldtrip 20 – 22 May 2005**



**group photo**



**pillow lavas**

photos by Eileen Fraser