



The  
Black  
Country  
Geological  
Society

## NEWSLETTER No. 163 February 2004

The Society provides limited personal accident cover for members attending meetings or field trips. Details can be obtained from the Secretary. Non-members attending society field trips are advised to take out your own personal accident insurance to the level you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

Leaders provide their services on a purely voluntary basis and may not be professionally qualified in this capacity.

The Society does not provide hard hats for use of members or visitors at field meetings. It is your responsibility to provide your own hard hat and other safety equipment \*(such as safety boots and goggles/glasses) and to use it when you feel it is necessary or when a site owner makes it a condition of entry.

Hammering is seldom necessary. It is the responsibility of the hammerer to ensure that other people are at a safe distance before doing so.

### FUTURE PROGRAMME

**Lecture meetings are held at Dudley Museum, St James's Road, Dudley.  
Phone (01384 815575)  
7.30 for 8 o' clock start unless stated otherwise.**

**MON 29<sup>TH</sup> MARCH 2004 (*Indoor Meeting*) 7.00pm for 7.30pm**

AGM followed by 'The Life and Environment of the Cheshire Basin 250 to 225 Million Years Ago' Dr Nigel Mountry, Keele University.

This meeting will look at the ancient world that once occupied what is now the Cheshire Basin and outline some of the fossil remains and tracks of the animals that once lived there

**MONDAY 19<sup>TH</sup> APRIL 2004 (*Indoor Meeting*)**

Briefing for 'The geology of the Longmynd, Priors Holt and the Knills area' and The 'glacial and post-glacial features of Eastern Shropshire' trips and preview of the new geology gallery. Mike Williams and Andrwe Rochelle will preview the next two field meetings and Graham Worton will give us a tour of the new geology gallery which will in-part be nearing completion.

**SATURDAY 24<sup>th</sup> APRIL 2004 (*Field Trip*)**

'The geology of the Longmynd, Priors Holt and the Knills area' leader; Mike Williams

This trip will look at the exotic landscape of the Pre-Cambrian created by the sedimentary and pyroclastic rocks of the district and will conclude with a visit to the Silurian shoreline exposed at the southern end of the Longmynd. Further details to follow.

*Chairman*  
G.J. Worton B.Sc., C.Geol.,  
F.G.S.

*Vice Chairman*  
A. Cutler B.Sc., M.C.A.M.,  
Dip.M., M.CIM.

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F.G.S.

*Meetings Secretary*  
G.W.J. Hensman B.Sc.,  
F.R.Met.S.

*Field Secretary*  
A. Rochelle B.A. Hons.,  
Tech.RICS.

**SATURDAY 15<sup>th</sup> MAY 2004 (Field Trip)**

The 'glacial and post-glacial features of Eastern Shropshire' by Andrew Rochelle  
The trip will particularly examine the ice sheet debris in East Shropshire and West Staffordshire and is timed to see the woodlands at their best. Come and see the bluebells.

**SATURDAY 26<sup>th</sup> JUNE 2004 (Field Trip)**

**'Journey into the heart of a geosyncline' Leader Mike Williams**

This trip will take in the scenery and geomorphology of the Elan Valley, into the upper Yswyth valley and across Parsons Gorge to look at fossiliferous rocks and finishing in the turbidite sequences around Aberystwyth.

**Important note**

It is our intention to provide minibus or coach transport for this excursion so that everyone can enjoy the benefits of not having to drive and some comradery, We also intend for the society to subsidise the cost of this. As such we need to know no later than the AGM names of anyone interested so that we can arrange appropriate transportation and put final costs in the April newsletter.

**THURSDAY 2<sup>nd</sup> – SATURDAY 4<sup>th</sup> SEPT 2004 (Conference)**

**UKRIGS Annual Conference at Dudley.**

This year the UKRIGS conference will be held in Dudley. Its primary themes will be 'Urban Geoconservation' The application of engineering expertise to conserving and managing geological sites, and 'The use of audio visual, film and the media to bring the geological story of local sites to the widest possible audience'. As usual it will be a programme of indoor talks and presentations with field trips to local sites and social gatherings. For those of you who have never been to one of these conferences and experienced what is going on across the UK to make geological sites more accessible to visit and enjoy, this is the best chance to test the water.

**SUNDAY 12<sup>th</sup> SEPTEMBER 2004 (Field Trip)**

**'The Woolhope Dome' joint Meeting with Woolhope Naturalists field Club**

This is a joint meeting which will look at the Silurian geology and fossils of the Woolhope Dome and the Mortimer Forest. It will be lead by the Woolhope Naturalists Field Club and will feature some very nice fossils and a welcoming pub stop!

**MONDAY 25<sup>th</sup> OCTOBER 2004 (Indoor Meeting)**

**'The geology, mineralogy and palaeontology of the Coseley Coal Measures Ironstones' by Laura Braznell, University of Birmingham.**

Laura is a PhD student currently researching the conditions that gave rise to the spectacularly preserved soft-bodied fossils in the ironstone nodules of Coseley and similar material from other famous locations like Mazon Creek,USA. Specimens from the collections at Dudley will be on display for the evening.

**MONDAY 29<sup>th</sup> NOVEMBER 2004 (Indoor Meeting)**

**Members evening of short talks and demonstrations**

This evening has proved to be very popular in previous years and will again will be open to anyone who would like to share something of interest, whether it be some rock or fossil specimens collected on holiday or a short talk accompanied by a few slides. We will provide refreshments as in previous years to make the evening a very sociable one.

**EDITORIAL**

There have been some excellent Earth Science television programmes in recent years. Most of us will remember the series of a few years ago hosted by Aubrey Manning, and every so often 'Horizon' comes up with a challenging scientific documentary. Well, it looks as if the BBC has come up with another cracker. I have been in touch with Kat Blair who is the Assistant Producer of a proposed series called 'Hot Rocks'.

Her e-mail to me said:

“Hot Rocks’ is a six part series on the history of geology and the Mediterranean, and how it relates to and effects our life today. Each programme will be 60 minutes long and will be broadcast on both BBC2 and BBC4 in August 2004.

We are no longer in the preliminary stages of production for the series. Things have taken a little more shape and we now have 6 programmes, each with an agreed script outline, which is exciting in itself. All is progressing nicely and the first programme is due to be filmed in February. Although there is no longer a need for brainstorming, as it were, we would very much like to hear from geologists in the UK who specifically have some expertise in relation to the Mediterranean in any of the following areas, so that we may develop the programmes in detail.

Each of the six programmes are themed, and the themes are as follows: architecture (building stones); food; art; health and medicine; culture; and last but by no means least, water and the beach.”

It sounds a very interesting project, and worth looking out for when it appears. If you or any geologist you know does have a special interest in any of these areas, Kat can be contacted on: [kat.blair@bbc.co.uk](mailto:kat.blair@bbc.co.uk) or if you do not have access to a computer, on 0208 7525428. Two weeks lying in the sun in Majorca does not qualify you to be an expert for programme 6!

Bill Groves

## REPORTS

MONDAY SEPTEMBER 29<sup>th</sup> 2003 Lecture ‘British Tertiary Volcanic Provinces’ Lava Fields’ by Dr Ian Williamson of English Nature (formerly of the BGS).

Dr Williamson graduated from Edinburgh University in 1974 and went on to do his PhD in Igneous Petrology at Durham in 1979. He has undertaken numerous geological projects throughout the UK and his current interest lies with the lava fields of the Inner Hebrides. His talk presented a review of the volcanic rocks that were erupted and injected into the shallow crust of the UK when the Atlantic Ocean began to open some 50 million years ago.

“Monotonous Piles of Basalt” was the title given by Dr Williamson to start the talk. Behind this title is the view taken from many early geologists and many today of volcanic and basaltic rocks being fairly grey and bland occurring in rather bleak and dull settings. Dr Williamsons’ talk aimed at expelling this myth showing that such rocks can reveal a lot of information and where they occur is a lot more interesting than first believed.

### GEOGRAPHIC AND HISTORICAL SETTING

During the Tertiary era much of southern Europe and Asia was being subjected to a mountain building episode known as the Alpine Orogeny. In most of Britain the Tertiary was a relatively quiet era and the chief fold structures of southeast England are main indication of this episode. However this was not the case throughout the British Isles and in western Scotland and Northern Ireland, and most of the North Atlantic region, immense igneous activity broke out creating the North Atlantic Tertiary Igneous Province, which in Britain is known as the British Tertiary Volcanic Province. This activity was probably connected with the enlargement of the Atlantic Ocean resulting from the westward drift of North America and Greenland.

The lava fields of The British Tertiary Volcanic Provinces’ form a belt stretching from NW Scotland and Northern Ireland, north westwards continuing to the offshore continental shelf, to include the Faroes, Iceland and Jan Mayen before ending up forming the southern part of Greenland. The Southern Uplands of Scotland are crossed by dyke swarms from this same complex. Dr Williamsons’ talk concentrated on the part of the volcanic provinces forming the islands of the west coast of Scotland.

The North Atlantic extension resulted in the formation of major fault and trough zones with platforms of land and major igneous centres represented by various islands such as the

Hebrides, Skye, Mull and Eigg. These igneous centres are characterised by a Central Intrusive Complex which generally appear as spatially very close volcanoes with jagged peaks and ridges. In turn these Central Intrusive Complexes are surrounded by extensive, stacked thick sheets of lava interbedded with often organic rich sediments deposited during a time when the lavas were submerged beneath a lake or shallow sea. Often these 'Lava Fields', as they are known, appear as elongate bodies which have typically flowed along an ancient valley or graben, which has subsequently eroded away, and infilled it. These Central Intrusive Complexes generally comprise gabbros and granites intruded by intrusive features such as dyke swarms, volcanic plugs and sills which, along with the basaltic lava fields have intruded and covered underlying Mesozoic sequences.

The volcanic provinces lava fields are important in many ways. The grey, rather dull and monotonous look of these rocks caused many early geologists of the 18<sup>th</sup> and 19<sup>th</sup> centuries to group them together and colour them pink on early geological maps thus making them difficult to subdivide. By 1914 to 1924 more detailed study was underway to differentiate the nature of the rocks found within the Tertiary volcanic provinces. The origin of the rocks caused much debate between geologists of the time as to whether they erupted from volcanic centres or were they the result of fissure eruptions. Many geological rock names are derived from their original discovery within these provinces: *Mugearit* and *Benmorite*. The area has in more recent times also become a classic place for teaching and also an economic analogue for hydrocarbon exploration.

Detailed mapping and 3-Dimensional stratigraphic studies to construct maps and sections of unconformity surfaces and facies analysis have provided evidence of the palaeogeographical and palaeoecological environment of this part of Scotland around the late Palaeocene, about 55 to 60 million years ago. Features within the rocks such as lava flows, sheets, tubes, breccias, tuffs, ignimbrites and pyroclastic deposits have been used to model what the volcanic and effusive eruptions of the region were like. There is much evidence of volcanic lavas and deposits having come into contact with wet sediment and bodies of water which have left behind the presence of sedimentary fining upward sequences, mudstones rich in coal and ancient soils containing the remains of trees and other plants, molluscs and insects. From the evidence it has been suggested that during this part of the Tertiary the Northwest coast of Scotland comprised a temperate to sub-tropical climate of shallow coastal swamps, lying within sedimentary basins or lakes, bordering a shallow marine environment. It was into these environments that the Tertiary volcanics were erupted as indicated by such features as pillow basalts and breccias.

To finish off the talk Dr Williamson cited a modern example of what this Hebridian Complex would have looked like when it formed 55 to 60 million years ago in Laki Iceland where volcanic cones, valley fill flow features with lakes and trees can be seen. Finally Dr Williamson produced a list of other reasons, other than the extraordinary geology, that makes the Hebrides interesting. These included economic reasons, like coal peat and hydrocarbon extraction, the wide range of wildlife, a place to feed the imagination of generations of artists, photographers, writers, classical musicians, movie makers and not to exclude also the regions' archaeology, history, myths and legends. Not only has this part of Scotland been exported on stamps but whiskey is also widely produced here to which Dr Williamson ended the lecture with a taste from the region.

Andrew Harrison

## [CONSERVATION COLUMN](#)

### **Notice of the 7<sup>th</sup> UKRIGS Annual Conference**

**THURSDAY 2<sup>nd</sup> – SATURDAY 4<sup>th</sup> SEPT** will see Dudley play host to geoconservation professionals and amateurs alike from all over the UK. Its primary themes will be 'Urban Geoconservation' 'The application of engineering expertise to conserving and managing geological sites', and 'The use of audio visual, film and the media to bring the geological story of local sites to the widest possible audience'. But we expect the programme to also include updates on Geoparks and case studies from many parts of the UK.

Thursday and Friday will be the main part of the conference and will include field visits to the engineering works at The Seven Sisters at Wrens Nest and hopefully the underground tunnel system beneath Drakelow near Kinver. Saturday will be the UKRIGS AGM and we will finish with

a final field trip which will include some of the public art which has a geological theme. Displays will be mounted at the preferred conference venue and the BCGS, as the host RIGS Group will be acting as 'ushers' and 'gofers' for the event - more details at the AGM in March and in the April newsletter.

For those of you who have never been to one of these conferences and experienced what is going on across the UK to make geological sites more accessible to visit and enjoy, this is the best chance to test the water.

## **Wrens Nest Update**

### ***Seven Sisters Siteworks***

There is still no change at Wrens Nest, engineering works are still on hold while the bats take their rest for the winter. It is likely that the bats will begin to leave the site in mid to late April and works will commence again.

I am now able to put into the diary the following working party dates for the collecting side of things at the stockpile locations.

1. *Saturday 27<sup>th</sup> March 2004, 10am to 12 noon*
2. *Saturday 8<sup>th</sup> May 2004, 10am to 12 noon*

### ***Seven Sisters Design works***

Many of you may have recently received an email from me asking for your opinions about the choice of stabilisation methods that is available for the next stage of works. A report on this has been produced by the engineers and there are 5 options ranging from total bulk infill of all openings (which is the cheapest but potentially most damaging solution) to partial infill and rock bolting ( which is more expensive but would preserve the classic view of the seven sisters mine entries).

### **YOUR VIEWS ARE NEEDED NOW ON THIS IMPORTANT STABILISATION DESIGN MATTER**

This is our last chance to influence the next stage of works and in particular which method will be adopted to stabilise the mine. As members of this society, set up to preserve and use such special heritage as the seven sisters, your views carry importance. If you have any comments about the heritage here and any concerns about the impact of works on these features then now is the time to write or email your views to me at the museum so that I can communicate them directly into the decision making process for the next and possibly final stage of works.

PLEASE GIVE ME YOUR VIEWS HOWEVER BRIEF -THIS IS REALLY IMPORTANT!

### **Dudley Museum Update – *Exhibitions***

#### ***The New Permanent Geology gallery***

On a lighter note, the opening of the new geology gallery through a mixture of staff illness and materials supply was delayed. We staged a one-day preview opening for those attending the museum during the half term week as a means to gauge general public opinion about the works in place to that point (see the attached photo of the limestone mining display and the Adrian Durkin our exhibition officer). This was an immensely useful thing to do and indicated several areas that we could improve upon in the design and resources that we will now put into place.



*Fig. 1 The state of the gallery today,*

Phase one of the new gallery will now open at Easter followed by phase two which will open on Friday 23<sup>rd</sup> July to coincide with the start of the schools summer holidays. An official opening will be held shortly after this to celebrate this complex piece of work to which all society members will be invited. The final phase of the 'UnEarthed' gallery will be put in place in September when we launch the teachers pack and schools outreach programmes to coincide with the start of the new term. (this will also be previewed at the RIGS Conference in September).

### **Rock and Fossil identification mornings;**

In association with the Launch of the 'UnEarthed' gallery I will also be formalising a programme of 'identification mornings' at the museum which will be widely publicised. For your information the following dates will be the first for the new year.

Thursday 15 <sup>th</sup> April 2004	11.00am to 1.00pm
Saturday 22 <sup>nd</sup> May 2004	10.00 am to 12.00 noon
Friday 4 <sup>th</sup> June 2004	11.00am to 1.00pm
Friday 30 <sup>th</sup> July 2004	11.00am to 1.00pm
Friday 13 <sup>th</sup> August 2004	11.00am to 1.00pm
Saturday 18 <sup>th</sup> September 2004	10.00 am to 12.00 noon

So, if you have any specimens that you would like identified then please make a note of the dates and times and come along and join us

## **GEOBABLE**

Next time you come to the Museum and Art Gallery, it is interesting to glance up at the building itself, deep red brickwork, with moulded decoration around the doors, and higher up bas-relief features proclaiming 'Museum', Art Gallery' and 'School of Art'. These are made in *TERRACOTTA*, moulded clay fired into brightly coloured ceramics that dominate the major industrial cities of this country. It was a major building material in the 1880's when the Museum was built.

It is possible to describe terracotta from either an architectural or geological viewpoint. The history of its use, both in Britain and the United States, is described in a splendidly illustrated book\* that I was recently given. There are some splendid examples locally, one of the most notable being the Birmingham Law Courts, but Stourbridge Town Hall is also impressive, and most Black Country towns have their terracotta Edwardian pub.

In the second half of the nineteenth century, industrial towns were apparently very proud of the chimneys belching smoke, the dirty furnaces and noise, as they were an outward sign of wealth and economic prosperity. A big drawback was that the stone buildings became very dirty, and fire was a hazard. Using terracotta largely solved these problems and allowed builders to cover an iron or steel framework with a fireproof skin. However, it was not all plain sailing and when the Birmingham Law Courts were built between 1887 and 1891, there were protests by masons and a short strike. Many Victorians also complained that the buildings were far too ornamental.

From a geological viewpoint, the clay had to have a fine texture, and fire with a smooth surface to carry detail. It also had to have considerable plasticity to retain its moulded form. The coal measure clays of our area were particularly suitable as well as being abundant. However, the centre of the industry seems to have been around Ruabon in Clwyd, North Wales, which at one time employed 1000 men. The clays around Ironbridge were also exploited by Craven Dunnill, and George Maw of Jackfield became the owner of the largest decorative tile works in Britain. Both these men were apparently amateur geologists, and George Maw collected samples and fired trials of 120 different types of clay.

Closer to home, the fireclays between Stourbridge and Lye were exploited by Doulton, and worked into terracotta at their Rowley Regis works. This old industrial site is still working, in Vale Road, Darby End.

There are lots of interesting questions that come up about this topic. Where did the terracotta in our local buildings come from? What about the white terracotta in some buildings, such as Lloyds

Bank in Stourbridge High Street, is that local? If you have any information or historical detail, please contact one of the editorial team, as I think I am just scratching the surface of an interesting topic.

*\*"The Terracotta Revival" by Michael Stratton. Published by Gollancz in 1993.*

Bill Groves

## [OTHER NEWS](#)

No other news has been received

## [CONTACT US](#)

As ever we would love to hear your news and views so please put pen to paper or fingers to keyboard and give us your thoughts.

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**BCGS Website now at [www.bcgs.info](http://www.bcgs.info)**

## **ANNUAL GENERAL MEETING 2004**

Notice is hereby given of the **twenty ninth Annual General Meeting** of the  
**BLACK COUNTRY GEOLOGICAL SOCIETY**

To be held at Dudley Museum at 7.30pm Monday 29<sup>th</sup> March 2004

### **AGENDA**

1. Apologies for absence
2. Minutes of the AGM held on 31<sup>st</sup> March 2003
3. Statement of accounts and Treasurer's report
4. Chairman's annual report
5. Election of officers and committee
  - a) chairman
  - b) vice chairman
  - c) treasurer
  - d) secretary
  - e) meetings secretary
  - f) field meetings secretary
  - g) three committee members
  - h) auditor
6. Any other business

### **Current Committee members:**

Chairman:	Graham Worton
Vice-chairman:	Alan Cutler
Treasurer:	Sue Fairclough
Secretary:	Sarah Worton
Meetings:	Gordon Hensman
Field Meetings:	Andrew Rochelle
Members:	Barbara Russell    Alf Cole    Mike Williams
Auditor:	Martin Normanton

All posts are honorary and available for re-election. Nominations may be made to the secretary or declared at the AGM.