The Black Country Geological Society

NEWSLETTER No. 182
APRIL 2007

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 whe n 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.

COPY DATE FOR NEXT NEWSLETTER IS 4TH JUNE 2007

In this edition:

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.

SATURDAY 28TH APRIL 2007 *(Field Meeting)*

Leader: Alan Bates (Shropshire Geological Society & OU Geology Society)

Coates and Lilleshall Quarries, Wenlock Edge.

Meet at the National Trust Car Park, on Wenlock Edge, at **10:30am**. Grid ref: **SO 613996**
Hard hat, high visibility jacket and stout boots (safety boots if you have them) are required. Please bring a packed lunch in case a pub stop is not possible. There is limited fossil collecting from part of the site. Alan will be interested in what any of our members have to say about the Wenlock Series so please bring any knowledge of Silurian limestones with you.

Andy Harrison

MONDAY 30TH APRIL 2007 *(Indoor Meeting)*

SPRING CONVERSAZIONE is CANCELLED

SATURDAY 12TH MAY 2007 *(Field Meeting)*

Leader: Dave Owen (Gloucestershire Geological Heritage Trust)

Tintern Quarry, Forest of Dean

We will meet at the entrance to Tintern Quarry (which is NOT actually in Tintern, but on the other side of the river at Tidenham Chase); Grid ref: **ST 551983**. If you are travelling south on the B4228 it is the first track on the right, after Miss Grace's Lane. Meet at **11.00am.**

Packed lunches will be required, and you will need hard hats if you want to go into the main quarry area itself, **at your own risk.** Strong footwear is advised. The quarry is not active so high visibility jackets will not be needed. A large part of the day will be spent looking at exposures along a forestry track that circles the main quarry where the rocks are easier to get to in safety.

SUNDAY 3rd JUNE 2007 *(Field Meeting)*

Leader: John Payne

Raggedstone Hill, Southern Malverns.

Joint trip with the Woolhope Naturalists Field Group. Meet in the Hollybush Car Park at **10.00am** which is on the North side of the A 438 at grid reference: **FO 759369**. You will need to bring a packed lunch.

SATURDAY 30TH JUNE 2007 *(Museum visit)*

Leaders: Andy Harrison and Mike Williams

The Natural History Museum, South Kensington

It is proposed to have a trip to the Natural History Museum on June 30th, repeated on September 29th. Mike Williams has suggested going by train to meet at the museum for 11:00 am. Apparently groups of four can get a special weekend rate ticket for the return journey and around the London public transport network. If interested members could contact Andy (jenufa8@yahoo.com mobile: 07973330706) then we can get an idea of groups of four and who'll travel with who. I expect that packed lunches may be an idea however there'll be plenty of places to eat in London.

LOOKING FORWARD

August - Trip to the Abberley Hills and Shavers End Quarry.

Andy Harrison

OTHER SOCIETIES

NORTH STAFFORDSHIRE GEOLOGISTS' ASSSOCIATION

Joint meeting with the West Midlands regional group of the Geological Society

Affordable Volcano Monitoring
Hazel Rymer (Open University)

Tuesday 24th April 2007
University of Wolverhampton, Room 202, Department of Applied Sciences, Wulfruna Street, Wolverhampton.
7.30 pm. Details of this lecture appeared in the February Newsletter

Saturday 19th May
Ercall Quarries, Wellington, Telford, Shropshire
Leader: Chris Rayner
Starting at 10.00am at the Forest Glen Car Park, Grid Ref: **SJ639093**
Note: a field fee of £2.00 per head is made.

For further information contact:
NSGGA Field Secretary **Gerald Ford,** Tel. 01630-673409 or e-mail: g.ford@ukonline.co.uk

SHROPSHIRE GEOLOGICAL SOCIETY

MARCHES FESTIVAL OF GEOLOGY

Did you know that the year 2007 celebrates a number of anniversaries significant to the geology of the country? They are:

- the 200th anniversary of the founding of the Geological Society of London
- the 150th anniversary of the founding of the Geologists' Association
- and – of most interest at a local level - the 175th anniversary of Murchison's epic visit to the area that led to publication of ***The Silurian System***, the book which laid the foundations for our modern understanding of Earth history.

The Marches Festival of Geology is a co-coordinated effort celebrating these anniversaries, and involves the Shropshire Geological Society, the Woolhope Naturalists' Field Club Geology Section, the Ludlow Museum Resource Centre (part of the Shropshire County Museums Service), the Herefordshire Heritage Service (the County museum service), the Hereford and Worcester Earth Heritage Trust, the Ludlow Research Group and the West Midlands Regional Group of the Geological Society. The highlight of these celebrations is a one-day symposium on Thursday 13th September, 2007 at the Ludlow Assembly Rooms.

LUDLOW IS HOSTING AN INTERNATIONAL SYMPOSIUM
"THE GROUND BENEATH OUR FEET – 200 YEARS OF GEOLOGY IN THE MARCHES"

All the speakers have a special interest in the geology of the Marches and their contributions will provide authoritative and up-to-the minute accounts of their specific fields. They include Ludlow resident, Michael Rosenbaum, Emeritus Professor of Engineering Geology, and Old Ludlovian, Dr David Lloyd MBE, Former Chair of the Ludlow Historical Research Group.
The programme will appeal to members of the public as well as the committed geologist. There are five themes:

- ***The mark of distinction:*** local character shaped by landscapes and building stones
- ***The Marches in the past:*** on the edge of a lost ocean
- ***Geology in the community***: evolving perceptions and realities
- ***The Ice Age:*** on the edge of a glacier
- ***The future*** for geology in the Marches

Registrations for the symposium on Thursday 13th September (£20 in advance, including a light buffet lunch; £25 on the door, excluding lunch) are being taken by the Treasurer: David H T Smith, 25 Grange Road, Shrewsbury, SY3 9DG. Cheques should be made payable to ***The Shropshire Geological Society*.**

Registration enquiries by email may be sent to david@thursfieldsmith.co.uk

For full details, visit http://www.shropshiregeology.org.uk/festival
or contact Professor Michael Rosenbaum on 01584 877 650, or email msr@waitrose.com

EDITORIAL

Many people interested in geology, and that includes many of our members, are attracted by fieldwork and looking at the landscape and scenery around us. As rocks in place can only be seen outside, often in remote areas, travel and in particular walking, is a common interest amongst geologists, both amateur and professional. Although living in the Black Country may seem to be the last place you want to be if you are interested in walking, most of us know otherwise. When I first moved here in the sixties, I always remember the phrase that appeared in the job advert I applied for in Dudley; "within easy reach of the Shropshire countryside".

But you don't have to go into Shropshire; the Black Country Boroughs also have planned walks in open spaces such as Walsall Arboretum, the Sandwell Valley as well as along the canals, footpaths and cycle paths. Just go into the libraries or look at the websites for information. Dudley has more than its fair share of geology and publishes informative leaflets describing how you can walk round the Wren's Nest and Barrow Hill. They have just produced a leaflet describing a walk which they call 'The Limestone Way'. It has quietly slipped into libraries and tourist sites without any fuss or publicity, but for us geologists it is a welcome addition to our maps, leaflets and field guides that we no doubt have.

It is a five mile stroll, and begins by looking at the limestone that built Dudley Priory (SO 944909) and made up Castle Hill. You then walk the length of the Wren's Nest and Mons Hill, cross Parkes Hall, Turls Hill and Hurst Hill Wood to reach the top of Sedgley Beacon (SO 923945) and the Beacon Hill quarry. It finishes on the Wolverhampton Road just north of Sedgley. The one disadvantage of the route is that it is not circular, but you can always go back again, for as experienced ramblers know, it is a different walk going the other way. You will probably need the 1:25,000 OS map sheet 219 from the Explorer series

The leaflet tells you where you can park and where there are four pubs on the route. It is also packed with geological information; I can recommend it to members as a geological day out, not too far away from home.

Bill Groves

MEETING REPORT

SATURDAY 17th FEBRUARY 2007 *(Field Meeting)*

Leader: Jon Radley; Warwickshire Geological Conservation Group and Museum curator

This was the first fieldtrip I had organised for the Black Country Geological Society since taking on the role of fieldtrip secretary after the sad passing of Andrew Rochelle early last year. Also it would appear this was the first field trip by the Society to Warwickshire.

The weather was rather cold and grey as around ten of us met on Saturday morning outside the Warwickshire Museum, after a quick introduction Jon explained how the morning would be split into three parts starting with a look round the Museum, followed by the centre of Warwick and finally on to the Burton Dasset Hills Country Park.

Jon went on to described the geology of Warwickshire and how in general the geology in the north of the county differs from the south. The youngest strata, of Lower and Middle Jurassic age, occur in the southern half of the Warwickshire and the older strata of Pre-Cambrian to Triassic age are further north. The northern part of Warwickshire is divided into three structural areas, comprising the centrally located fault bounded graben of the Warwickshire Coalfield which is bounded to the east and west by the Hinkley and Knowle Basins. These structures were formed by extensional tectonic activity during the late Permian and possibly early Triassic. Strata of Precambrian to Permian age make up the Coalfield whilst the two basins are dominated by Bromsgrove Sandstone and Mercia Mudstone of Triassic age. Southern Warwickshire is characterised by scarplands underlain partly by Lower Lias clays and Middle Lias mudstones and ironstones. Warwickshire's solid geology is extensively overlain by younger superficial deposits of Quaternary age. The fossilised remains of a wide variety of plants and animals have been discovered in the various strata that make up Warwickshire. These include rhynchosaurs, plants and other continental fossils in the Triassic rocks; marine reptiles, cephalopods, reef faunas from the Jurassic strata and mammoth, woolly rhino, giant elk and ox of Pleistocene age.

Warwick itself sits on a hill of Bromsgrove Sandstone at the southern tip of the Warwickshire Coalfield. To the west of the centre of Warwick, the ground slopes down towards and crosses the Warwick Fault and the geology changes from Bromsgrove Sandstone to Mercia Mudstone. To the south and east of central Warwick the ground slopes away towards the River Avon where the Mercia Mudstone is overlain by River Terrace Deposits.

Movements along the Warwick fault still occur today. The last recorded event occurred on 23rd September 2001, measuring 4.2 on the Richter Scale, and occurred almost exactly one year before the Dudley earthquake of 2002.

After the Museum Jon gave us a tour of the urban geology of the centre of Warwick. The Museum, originally the old Warwick market hall which has housed the modern geology gallery for some 30 years, and the impressive Warwick west Gate are surviving examples of the oldest of Warwick's buildings that have been constructed from Bromsgrove Sandstone. At the West Gate we were shown that this formation is very close to the surface, appearing in places as cross-bedded sandstone. The Bromsgrove Sandstone is no longer quarried locally and nowadays building restoration relies very much on imported stone from places as far a field as Grinshill in Shropshire. Dotted around the streets and pavements of the city centre are arrangements of quartzite cobbles that originated from Bunter Pebble Beds, laid down by rivers during the Triassic. Our tour of central Warwick ended at the Shire Hall; the outside of which is covered in a mottled red ironstone. Closer inspection revealed crustacean and worm burrows, nests of brachiopods and pieces of wood. This oolitic ironstone is the famous Marlstone, belonging to the Jurassic Middle Lias, and was quarried from Edge Hill to the south of Warwick. It is believed to be partly the product of eroded lateritic soils being washed into shallow tropical Jurassic seas.

For the final part of the fieldtrip Jon took us to The Burton Dassett Hills Country Park where the Marlstone is still exposed. It is approximately 15 km south of Warwick just off junction 12 of the M40, and the hills stand about 150m high and were extensively quarried for ironstone before the First World War. From the summit of Windmill Hill, Jon showed us what remained of the former ironstone quarries and how this strata forms a cap to parts of the Burton Dassett Hills. Out to the west the ground falls steeply away, into a low lying vale of Jurassic Lower Lias clays before rising again in the distance to form Edge Hill, another ironstone outcrop. From here, into the grey haze, it was pointed out that we could see not only the battle field from the Civil War but also the transition from Lower Lias clays to Middle Lias silts, clays and ironstones.

This very interesting and successful first trip to Warwickshire ended at 13:00. On behalf of the society I would like to thank Jon Radley for being our guide for the morning and hope that this will be the beginning of more trips to look at Warwickshire geology.

Andy Harrison

MONDAY 26TH FEBRUARY 2007 *(Indoor Meeting)*

Dr. Cynthia Burek: (University of Chester)

The role of Women in the History of Geology

Do you know who Catherine Raisin was? Did you realise that women could not take degrees until the 1920's although they could follow the course? These were just two of the many interesting details that came out of Cynthia's superbly illustrated talk. The evening started with a questionnaire, how many female geologists could we write down, indeed how many scientists? We got Marry Anning and Madame Currie, but beyond that we were struggling and I don't think many wrote down Catherine Raisin, the pioneering geology teacher at Bedford College; a great legacy and role model.

Geology not only suffered from all the usual prejudices about female involvement, but it also had to cope with the problems of fieldwork. It is of great credit to the Geologists' Association that women were encouraged to take part from its inception in 1858, but there were all sorts of barriers; class, convention and transport. The result was that women would stay in their own localities and attach themselves to a male relative; Mary Anning did much of her work with her father and brother. Many were the wives of geologists, for example Mary Ann Woodhouse or Mrs Gideon Mantell.

After 1875 women were allowed to train professionally, and a common strategy employed in the field was for the teacher to take his wife to act as chaperone for female students, a technique used by Professor Lapworth. But even so the dress code inhibited women, corsets and crinolines were not the ideal field dress, but the invention of the bicycle was a great liberator together with the acceptance of bloomers as female attire. This was a fascinating evening, and an eye-opener for many of us. Many thanks Cynthia.

Bill Groves

SATURDAY 24TH MARCH 2007 *(Field Meeting)*

Leader: Dr Jaqui Malpass: A visit to the Brymbo Steelworks and Fossil Forest

Members of BCGS at Brymbo fossil forest, and part of the cleared area.

This was a follow up to a talk given by Dr Jacqui Malpass at the end of last year. Around 25 heard Jaqui give us a brief introduction to the history and conservation issues surrounding the site. The Brymbo Estate was purchased, in 1792, by John Wilkinson an ironmaster, inventor and entrepreneur who recognised the site for its wealth of raw materials, especially the Coal Measures beneath. When first purchased the estate measured around 500 acres and when the steel works closed, in 1990, the site had grown to around 900 acres. Although coal had been extracted from beneath the site since Medieval times; John Wilkinson was the first to extract it on an industrial scale.

The remaining Old Steelworks buildings, which now stand as a majestic legacy to John Wilkinson were listed as Ancient Monuments. Restoration included reshaping old slag heaps, which had to be covered in a 3.00m thick layer of 'clean material'. Beds of sandstone and mudstone on the site provided a good source of 'clean material' and it was whilst excavating these that the fossil forest was discovered.

Early excavations uncovered a unique find of up to 20 fossil `trees'; club mosses or Lycopsids, in a small area. Consequently extensive discussions began between the site developer and Peter

Appleton (Brymbo Heritage Group and NEWRIGS) to find the best way to conserve the site. Dr Malpas has overseen excavations and fieldtrips to the site. Initial fieldtrips centred on collecting as much fossil material as possible, for future displays within the Heritage Centre area, with the aims of cataloguing and photographing fossils, rock faces and excavation progress to compile a comprehensive record of the site, now a registered RIGS site with a rather uncertain long-term future.

After looking at the old Steelworks buildings we were shown the fossil forest, by Jaqui, which gives a tantalising glimpse of what this part of the world was like around 300 million years ago during the Carboniferous. Stratigraphically the Forest is contained within a succession of seat earths, mudstones and rippled sandstones trapped between two thick beds of coal. A unit of seat earth immediately underneath the 2 Yard Coal contains abundant Stigmaria and Calamites. Underlying the seat earth is a sequence of mudstones, which contains abundance ferns, Calamites rhizomes, and sandstones, with upright and slightly inclined Calamites stems. The lowest horizon, situated just above the Crank Coal, contains preserved stumps and roots at the base of which sits a thin 50mm thick band of coal. The main species of Lycopsids, found in the fossil forest, are Lepidodendron and Sigillaria.

Lycopsid (club moss) found growing within a much larger specimen.

It is planned to build a Geodesic Dome over the forest to enable the work of revealing and conserving the fossil forest to begin. This will provide the most accessible record of a section of Carboniferous Forest found in the UK as well as being an important educational tool for geology students.

Plans for the future developments are currently on hold until a feasibility study has been undertaken to establish how much the future proposals will cost. In the meantime a good part of the site remains uncovered and many fossils left exposed to the elements. Fossils collected so far have been housed in the Heritage Centre, in need of cataloguing, which we were allowed to view before leaving the site at the end of a very enjoyable and interesting day. I would like to thank Dr Malpass and her colleagues for giving us the opportunity to visit this extremely interesting site and hope more visits will be possible in the future.

Speaking with Jaqui afterwards and subsequently to members of the BCGS I would be interested in hearing from any members willing to participate in a voluntary day (or days) to Brymbo to assist with sorting out and catalogue the fossils already discovered and helping with the future preservation of site. If society members are interested in helping out please let me know and I will arrange a visit with Jaqui.

Photographs taken by Julie Schroder.
http://www.photobox.co.uk/album/5222685

Andy Harrison (jenufa8@yahoo.com mobile: 07973330706)

MONDAY 26TH MARCH 2007 *(Indoor Meeting)*

ANNUAL GENERAL MEETING

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It would be unfair to say “nothing to report” for what is the most important meeting of the year for the society, but no contentious issues were aired, we have had another successful year with lots of interesting trips and meetings. Alf Cole once again chaired this year’s AGM and 36 members

were present. The principal members of the committee were re-elected 'en-bloc', and the officer's names appear on page 1 of this newsletter. Les Riley joined the committee to replace Bob Buckie who stood down due to work commitments. Barbara Richards continues as our other 'ordinary' member. Alf did inform the meeting that we are always looking for members to serve on the committee, it is not a big job but new blood is always a bonus. He also reminded us that he did not see his position as Chairman as being a perpetual one and it was his intention to make this his last year provided another suitable candidate is found. The AGM lasted thirty minutes and was followed by:

David Pannet. (Field Secretary Shropshire Geology Society).

The Ice Age History of the River Severn around Shrewsbury/Ironbridge.

David gave an interesting and well illustrated talk on the River Severn in this area of Shropshire. After outlining the Permo-Carboniferous solid geology, which has an undulating topography between 0 and 60m O.D., he looked at the glacial drift that filled these basement depressions. He explained the distribution of the sandy boulder clay; the sandhur type sand and gravels, and the peat filled kettle holes.

When looking at the river morphology, David explained that it once flowed on the ice and so is superimposed on the rock beneath, so the meanders were produced in the immediate post glaciation period. Erratics have been used to help interpret the provenance of the drift deposits, with Scottish granite boulders indicating a northern origin, whereas the Irish Sea drift contains shells, picked up as the ice crossed beaches. These shells were first discovered by Darwin.

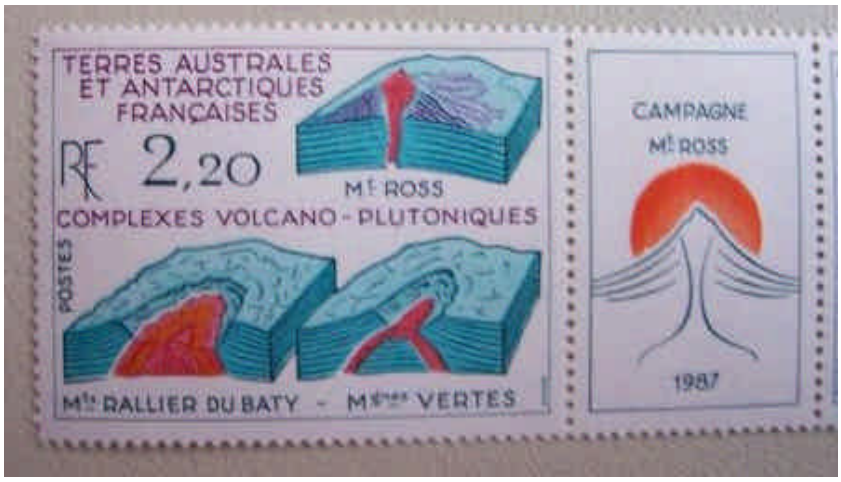
However, most interestingly, David described deep, buried channels in the basement carved out by sub-glacial streams flowing under hydrostatic pressure under the ice. One particularly large one can be found from Shrewsbury to Ironbridge, and it is interpreted as guiding the Severn to its modern course through the gorge, when the ice melted. This channel is thought to be sub-glacial because in places it goes up-hill, a characteristic of water moving under hydrostatic pressure. David also cautioned us to remember that although the Devensian glaciation has left many features, the ice would have been relatively thin in this area, whereas the much thicker, earlier, Anglian ice was far more likely to produce these large sub-glacial features.

This was a very thought provoking talk, and it encouraged those of us brought up on pro-glacial lakes and overflow channels to find out more. Many thanks to David!

Sarah Worton and Bill Groves

GEOLOGY IN STAMPS

It is not often that you find a geological map and section printed on postage stamps, but on these stamps from the French Southern and Antarctic Territories there is a map and section of the Kerguelen Islands. There are 300 islands in the group which is in the Southern Indian Ocean, 49°S 70°E which is midway between Africa, Antarctica and Australia. This island has an interesting fauna but a poor flora, the only plant of note being the Kerguelen cabbage! Its population consists entirely of research workers, mostly geologists and biologists, and reaches a maximum of 110 in summer months; why have a stamp, one wonders. It certainly lives up to its English name of Desolation Island.



However, for the geologist, this small island complex is just the surface expression of a LIP (large igneous province). As the stamps show the island is volcanic with one active volcano; the mountains reach 1,850m and are probably fed by a mantle plume. The origin is of significance geologically. During the break up of the southern continent Gondwanaland, 130mya in the Cretaceous, a plateau of igneous material was left in the Indian Ocean as the Indian sub-continent moved northwards. So the Kerguelen Islands give us a brief surface peep of this feature.

Bill Groves

GEOLOGICAL PLACES

The Isle of Arran off the west coast of Scotland is a classic area for geology. It is difficult to know where to start when describing it, there is so much variation. It is most well known for its igneous rocks and structures, granite intrusions, sills, dykes, volcanic centres, they are all there, and beautifully exposed. This photograph is of '*Hutton's unconformity*' at Lochranza in the north of the island. First recognised by James Hutton in the late eighteenth century, it has Carboniferous sediments sitting on steeply dipping Dalradian schists. The line of the unconformity represents a time gap of over 200 million years, highly significant in geological terms. When you are there it does not take much imagination to think that you are standing in the same place, looking at the same rocks as one of the great fathers of our science.

Please send or hand to me a few lines about one of your favourite geological places, I can usually find a picture to go with it, and it makes for interesting reading for other members.

Bill Groves

GEOBABBLE

Sinohydrosaurus lingyuanensis ; what a splendid name for a fossil, it was an aquatic reptile of Lower Cretaceous age, about 145ma, it had a very long neck and grew up to about 1 metre in length. A specimen found in the Yixian Formation of North East China recently made the national press. The reason it created a stir is fairly obvious as this reptile has two heads.

It is interesting to see how the media covered this discovery. The cold facts of the discovery are to be found in the Royal Society publication, 'Biology Letters'. (www.journals.royalsoc.ac.uk) The lead research worker Dr Eric Buffetaut describes it as *"a malformed, choristoderan reptile….the tiny skeleton has two heads and two necks"* The length of the fossil in the picture on the left is about 8cm.

Most of the other news reports were culled from this article with various slants put upon it. The BBC on its website had a description under the headline *"Two-headed reptile fossil found"*. The Daily Telegraph had a rather more fanciful headline of *"Fossil of two-headed 'dragon' found in China"*, and said that it was found in a *'fossilised nest',* but the report that followed had extensive quotations from Dr Buffetaut, explaining how malformations of this kind can be found in reptiles, although they are very rare, which makes the chances of it being preserved very remote. The Daily Mail had a large photograph captioned *"Double trouble"* and a main, underlined headline, *"Unearthed, the dragon with double firepower"* but it did give the full name and a serious explanation of the phenomena. All in all it was good to see the popular press deal with a geological story largely from a serious scientific viewpoint.

Bill Groves

CONTACT US

As ever we would love to hear your news and views, for any part of the Newsletter, so please put pen to paper or fingers to keyboard and give us your thoughts. We are often able to print photographs that are sent by email or colour print. Notices that appear in this Newsletter will remain in future editions until the date of the related meeting or event has passed. In order to include material in the June Newsletter, please send or give it to one of the Editorial Team by ***Monday 4th June 2007***

EDITORIAL TEAM

Hon. Secretary: Sarah Worton 158 Oakham Road Oldbury B69 1QQ Tel 01384 235946	Graham Worton Dudley Museum and Art Gallery 1 St James' Road Dudley DY1 1HU Tel 01384 815574 Or email: graham.worton@dudley.gov.uk	Bill Groves 23 Churchward Grove Wombourne Wolverhampton WV5 9HB Or email: bill.groves@dudley.gov.uk billgroves300@btinternet.com

Copy date for February Newsletter is **Monday 4th June 2007**

BCGS Website at www.bcgs.info