



The Black Country Geological Society

Newsletter No. 195 June 2009

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.

Committee

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Gordon Hensman B.Sc.,
F.R.Met.S.

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M.C.A.M.,
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Meetings Secretary

Paul Trower

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Andrew Harrison B.Sc.,
M.Sc., F.G.S.

Other Members

Bob Bucki

Les Riley Ph.D., B.Sc.,
F.G.S., C.Geol., C.Sci.,
C.Petrol.Geol., EuroGeol.

Graham Worton M.Sc.,
C.Geol., F.G.S.

Copy date for the next Newsletter is

Monday 27th July 2009

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Future Programme

Saturday 27th June 2009 (Field meeting) Return to the Brymbo Fossil Forest.

Led by Prof Jacqui Malpas. Meet at 11:00 am. Members should bring lunch. Joint with the NSGAA. Brymbo directions SJ 295 536: Take the A 483 south to Wrexham, exit at the junction with the A525, signed Brymbo, Coedpoeth. Turn right across the A 483 and take the 2nd right to Brymbo (1st right is just after the lights). After about 1 mile turn right down to a T-junction signed Brymbo. Turn right, Brymbo and go under a bridge and through the village of Lodge (landscaped slag heaps on the left). Take the 1st left up the hill. Just before the T-junction at the top turn left into the site. Drive through the gates and park in the bottom car park by the containers. The meeting will be in the large brick building above the car park.

Andrew Harrison

Dudley Rock and Fossil Festival

This will take place on **Saturday 19th & Sunday 20th September 2009** at Dudley Concert Hall and Dudley Museum & Art Gallery on St. James's Road, Dudley. It will be open from 10am-5pm on Saturday and 10am-4pm on Sunday. £1 entrance fee per person.

In the Concert Hall: exhibitors from the world of geology, including superb fossil and crystal displays, gems, cut stones, jewellery; face painting, fossil casting and craft activities; a Birds of Prey Display and a T. Rex skull! **In the Museum and Art Gallery:** new dinosaur material, a Darwin exhibition, geologically inspired art and poetry, lab activities, a lecture programme... *Further details can be obtained from Dudley Museum & Art Gallery on 01384 815575.*

The BCGS stand needs volunteers!

We need 3 volunteers at a time. Dividing each day into morning and afternoon sessions makes a total of 12 volunteers. If you can offer your services for one or more of these sessions, please contact Barbara Russell tel: 01902 650168, email: barbara-russell@blueyonder.co.uk

Other Societies

North Staffordshire Group of the Geologists' Association

Sunday 19th July: The Geology of the Malham Tarn and Malham Cove area

Leader: Alan Diggles.

Meet at 10.00AM at Settle (OS Sheet 98 SD 818638), to examine the effect of the Palaeozoic Inlier, the North Craven Fault and Limestones around Malham. Distance on foot about 4 km, packed lunches, stout boots and wet weather gear needed. Staying on the old A65 into and through the town centre, the meeting point car park is by the side of the main road on the left just before the railway viaduct on the way out of Settle.

Saturday 26th September: Churnet Valley Geotrail (South)

Leader: Dr Richard Waller

Meet at 10.00AM at the Car Park (SK 062432) adjacent to the Ramblers Retreat for two loops of the southern section of the trail, possibly returning to the RR for lunch and then again for tea! For good exposures of the local Triassic sandstones, and the opportunity to visit Toot Hill with its spectacular views of the lower, deeply-incised section of the Churnet valley.

For further information contact NSGGA Field Secretary **Gerald Ford**, Tel. 01630-673409 or email: g.ford@ukonline.co.uk A field fee of £2.00 is made (for members and non members).

Warwickshire Geological Conservation Group

Wednesday June 17th: Topography Walk with Jon Radley – a look at the Humpty Dumpty Field near Ilmington and other interesting landscape features. Meet at 7pm at SP 212 433. This is by the first fork on the road going south from Ilmington).

Wednesday July 15th: Quarryman's Walk with Peter Homer – this was cancelled last year due to the awful weather. This is the area of Warwickshire's famous quarries and our route will show these and also buildings using local stone. Meet at 7pm at SP 340 135. (B4114 from Nuneaton, turn right up the Mancetter road B4111, look for the 'Community Nature Area' to park. Beware of the speed cameras.

You're always welcome, but it might be good to contact us first in case of change. Email Christine Hodgson cvhodgson@hotmail.com or Nigel Harris harris@harris5mercia.plus.com. You could try 01926 853699 or 01926 5511097. Arrangements for cancellation of evening field trips: the WGCG mobile phone will be answered from 11am on the day of the trip. The number to ring is 07527204184

Editorial

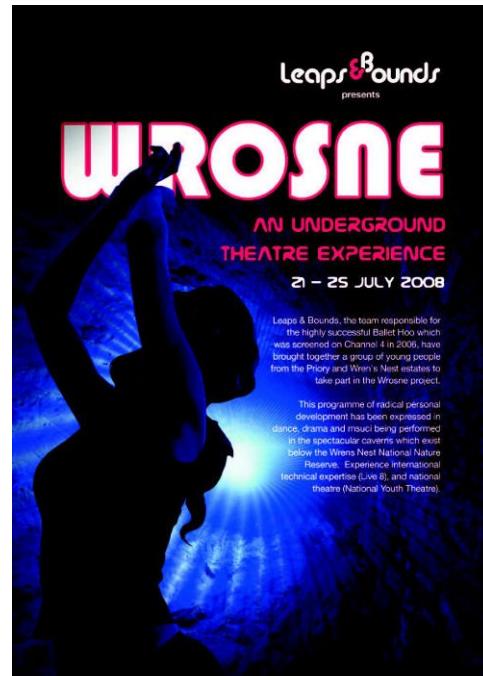
Wrosne Retrospective

During our February field trip to Dudley Museum and the Wren's Nest Graham Worton provided the background for my April editorial, but in addition drew our attention to something rather amazing which took place in the Dudley caverns last July. This was the Wrosne project, a theatrical project for 15 to 19 year old young people living on the Wrens Nest and Priory estates. But what has this got to do with geology? Read on...

Some of you may remember the 'Ballet Hoo' project in which the organisation 'Leaps and Bounds' in conjunction with experts from the Birmingham Royal Ballet worked with disadvantaged youngsters from the Midlands for 18 months. This culminated in a performance of Prokofiev's ballet Romeo and Juliet at the Birmingham Hippodrome in September 2006, and the whole project was televised on channel 4.

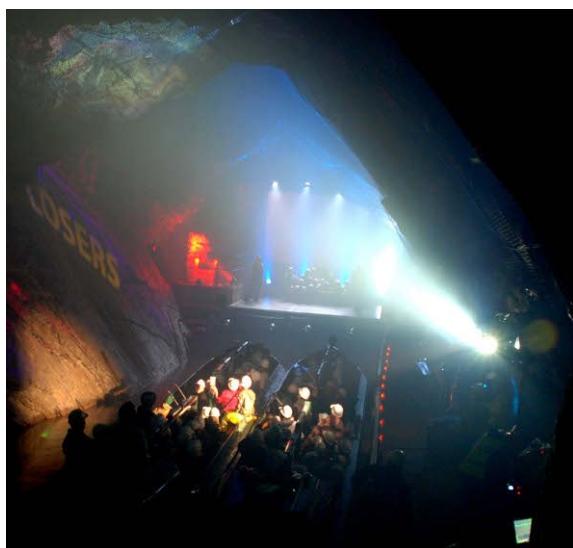
Leaps and Bounds then turned their attention to the youngsters from two socially and economically deprived housing estates in Dudley: the Wren's Nest and Priory estates, situated on opposite sides of the Wren's Nest Nature Reserve. Though hallowed ground for geologists, the Reserve is little more than a big adventure playground for these youngsters. Recognising the importance of the geology and industrial archaeology exposed at the Wren's Nest, Leaps and Bounds saw the artistic potential in this as a unifying theme, but needed an expert to help them with this aspect of the project. Enter Graham Worton, and the Wrosne project was born.

The name 'Wren's Nest' is thought to derive from the anglo-saxon word 'Wrosne' meaning 'the link', possibly because of its geographical location between Castle Hill and Mons Hill, or an alternative suggestion that it lies between the Severn and Trent watersheds. Whatever its ►



origins, this one word neatly encapsulated the aims of the project: linking disadvantaged youngsters from separate and sometimes mutually hostile communities, linking all these youngsters with the rich heritage on their doorstep, and ultimately providing a link between their sometimes difficult backgrounds and the prospect of a better future, with many more opportunities.

Graham explained to us how his involvement went way beyond advising on geological matters. He knew from the start that once involved, there was no turning back: these deprived youngsters needed total commitment and stability from the professionals involved if the project was to succeed at all. 60 young people took part, and many of them had suffered significant difficulties and been let down in many ways by the adults in their young lives. Graham underwent training to acquire the necessary pastoral and mentoring skills, and was involved throughout the 12 month period of preparation leading to the week of performances in July 2008.



Unlike the 'Ballet Hoo' project in which the performers were more or less constrained by the musical score and the strict conventions of classical ballet, the youngsters in the Wrosne project created their own script, based on the geological backcloth to their underground stage and their own life experiences. Thus the Singing Cavern was transformed into 'Club Siluria', owned by a shady figure called 'Rift'. Just as rocks breaking under pressure are known as failures, so Rift thrives on the failures of other people. There are Seven Sisters named after the local fossil fauna, including Fenestella, Bembexia and Lepidaster, and one most aptly named Calymene. They go for a night out at the club where they are faced with life changing decisions, just as they are in their real lives.

Nearly a year has passed since this project, and it is gratifying to learn that many of the youngsters involved have indeed moved on with more positive attitudes to education and life in general. It is significant that incidents of crime and vandalism on the estates and in the Reserve dropped dramatically during and after the project. The aims and success of this project also link with the aims of the 'Strata' project for the Wren's Nest, (*Newsletter 194, P.9*) to appoint a learning and community development officer and a community partnership with particular emphasis on encouraging the involvement of local young people.

If only Wrosne had received the same publicity as Ballet Hoo! It was surely equally deserving, if not more so for the uniquely imaginative script and the quirkiness of the performance venue. This has shown that geology can inspire artistic endeavour, and in so doing can give the participants a new way of looking at their environment - perhaps even awakening a wider interest in geology. In our geologically rich country there is surely endless scope for projects of this kind, given the right people and the resources to make it happen.

It is 160 years since Sir Roderick Murchison addressed the British Association for the Advancement of Science in these same caverns, which were so important to his designation of the Silurian system. What would he have made of the Wrosne project? The gulf between his social world and that of those youngsters is almost as great as that between the Silurian seas which spawned the Wren's Nest, and its appearance today. The connecting link is the unique geology of this amazing place, and its ability to excite and inspire people through the ages in ways as spectacular and varied as the rocks themselves. ■

Julie Schroder

The Dudley Bug

Welcome

Welcome to the June issue of the 'Dudley Bug'. This month we discuss the status of the Plio-Pleistocene Boundary. We also give you a little something to keep you occupied during these cold, wet summer days; what exactly is a geologist and how do you spot one? All will be revealed! We also bring you the answers to the Wordsearch on the origins of the Earth from issue 194.

Alison and Chris

What is a geologist???

This month, we're investigating what a geologist really is and what makes the geology tribe so special. After all, geology is a unique subject with much camaraderie (with the exception of a geochemist arguing with a seismologist over their favourite volcano) and unusual puns not found in other subjects.

Well, we're scientists that have unnatural obsessions with rocks and dead animals. Some say we're too intelligent for subjects such as chemistry, physics and biology. So what do we do? Geologists are often seen in rocky wildernesses (not too far from the pub) and are specialists in: rock beating, volcano poking, dust collecting, mud-stamping, fault finding and worst of all... high risk colouring in! For "hard-core geologists" activities may include: trilobite wrestling, earthquake surfing, landslide catching and paper anticline modelling.

Geology was invented when James Maxwell built a time machine, in which he took James Hutton to 2.5Ma. This gave Hutton the idea of geology; he then gave the idea to Charles Darwin. We generally become geologists because many years ago we were lured into a classroom by "pretty rocks", with someone saying "You like these?... we have more". After years of pretend study, and a strange festival called a "field trip" the geologists graduate, safe in the knowledge they don't have a worthless degree in media studies. Sometimes geologists are lost on field trips; this is often due to them becoming over-excited by rock deformation and refuse to move from the outcrop.

Some of you may have heard of the Geology-Geography wars, since 1855 (last Monday evening). In the last engagement between the two tribes the geographers were routed by the overwhelming fire-power of the geologists' flint-lock machine guns, and vicious hand to hand combat with rock hammers. It can be summarised that geographers are (pretend) scientists that learn less and less about more and more until they know almost nothing about almost everything. But geologists are scientists that learn more and more about less and less until they know almost everything about almost nothing!

A few points to help you spot a fellow geologist...

- Someone who considers a recent event to be in the last 100 million years.
- Hand-lens, compass and knife tied around their neck with string.
- Someone whose rockery is inside the house.
- Someone awkward and unsure around people who don't know the difference between a rock and a mineral.
- Someone who eats dirt and claims to be "getting an estimate of grain size".
- Someone who has hiked 6 miles to look at a broken fence that was "offset by a recent earthquake".
- Someone who willingly crosses a motorway on foot to determine if the outcrops are the same on both sides.

- Someone who owns a pet rock and is not eight (in the case of palaeontologists, this will be their closest friend), with their 'pet' often found hanging from keys.
- Someone who thinks of woodlice as trilobites but would tell anyone off who said so.
- Someone who when colouring, stays between the lines. Always.
- Someone who has to point out that your kitchen worktop is NOT made of granite, and after a seemingly nonsensical crash course in mineralogy (involving many 'diagrams' and supposed 'writing') even produces their trusty hand-lens to show you.
- Someone whose shorts expose way more leg than you ever wanted to see.
- Someone unwilling to improve their personal situation, resigned to the fact that the sun will explode in 5 billion years anyway.

The Plio-Pleistocene Boundary

The Plio-Pleistocene Boundary marks the start of the Quaternary Period. The location of this boundary has been under scrutiny since 1948, although arguments do date back 150 years. The term 'Pliocene' was introduced by Sir Charles Lyell in 1933. This was the first point in which this term was placed in general use. Today it is still being questioned with suggestions to either move the boundary to 2.6Ma or to keep the boundary at the present 1.8Ma and abandon the term 'Quaternary'. The current Global Stratotype Section and Point (GSSP) for the 2.6Ma boundary is Vrica, Italy where the presence of the first cold water guest, an ostracod, has been used to date it. Other dating methods which have been used to date the Plio-Pleistocene Boundary include isotope dating, deep marine sediments, alluvial sediments and pollen. The new 2.6Ma Boundary also links to possible Milankovitch precessional cycles and palaeomagnetic reversals; in particular the Gauss-Matuyama Reversal which occurred at 2.6Ma. This palaeomagnetic reversal marks the start of a cooling climate and the development of ice sheets in the Northern hemisphere.

The removal of the Quaternary as a whole has been suggested, but due to its wide use in not only the Geological community, this would cause confusion and possibly further conflict. There is enough evidence to support the movement of the boundary to the Gauss-Matuyama Reversal at 2.6Ma and to keep it as a system. 2009 will see the final decision being made regarding both the Plio-Pleistocene Boundary and the Quaternary. This will result in the International Stratigraphic Chart and Geological Time Scale being the same worldwide as well as finally giving the term 'Quaternary' a formal definition. The voting is presently taking place through the International Commission of Stratigraphy (ICS). To follow this voting and to find out more please visit www.stratigraphy.org.

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Answers from Newsletter 194

Origins of the Earth

**Next Time... Coalification in
the Carboniferous.**

A Tribute to Retiring Chairman, Alf Cole

On joining the BCGS more years ago than I care to remember, I noticed a white-haired gentleman who seemed to me to be the consummate academic - in the nicest sense of the word I hasten to add. I was very impressed by his meticulous and precise approach in the pursuit of the scientific truth of any problem - no matter how esoteric.

This was, of course, Alf Cole, affectionately known as Alf, Chairman of the BCGS for several years. I was not surprised to find that Alf is a highly qualified chemist - an area of science that requires his sort of analytical mind.

Alf has been a member of our Society for some 20 years, and has contributed greatly to its success in innumerable ways. He has done far more things for us than I can mention, particularly in exposing and bringing to attention the geology of the Walsall and West Bromwich areas.

Although he is a Liverpudlian, he blends into the Black Country like a native. He graduated from the University of Liverpool with a First in Chemistry, and subsequently taught at Chance Technical College, West Bromwich for 25 years. He holds an Earth Science degree from the Open University, and he has an MSc. in Science Education, from the University of Keele. A characteristic of Alf's is his modesty; he never speaks of his academic achievements although he must be one of the most highly qualified members of our Society. He is a past master of hiding his light under a bushel. However, I have discovered that he also has a degree in French, and I don't think he wanted you to know that!

We have much pleasure in thanking Alf very warmly for his invaluable contribution to the BCGS. We shall miss him as Chairman, but we know that he will be at all our meetings, whether in the field or indoors at the Museum - and he will still be making his inimitable contribution.

Thank you Alf, from all of us. ■

Gordon Hensman

Gordon has taken up Alf's mantle as Chairman, and Paul Trower has taken over from Gordon as Meetings Secretary. More on the new committee next time... Ed.

Geologist Explorers



Sir James Wordie

The end of the nineteenth and beginning of the twentieth centuries can be regarded as the golden age of polar exploration and there was great interest in Antarctica, both from the British and Norwegians. There were many expeditions culminating in Amundsen reaching the South Pole on 14th December 1911, followed by Scott a month later, and then followed the heroic Trans-Antarctic attempt by Sir Ernest Shackleton in 1914. Although many would regard Amundsen's trek as having only one aim, to reach the pole, most of the expeditions had a large scientific component, and the Chief Scientist on Shackleton's expedition was the geologist James Wordie.

Born in 1889, he studied geology at Glasgow University and then went to Cambridge and became a lecturer in petrology. He sailed on the *Endurance* in 1914; the ship was trapped and then crushed by the Weddell Sea ice in 1915. What followed, the trek and then sailing in open boats to Elephant Island ►

and the final rescue has been told elsewhere, but what of the role of this quiet, unassuming geologist on an Antarctic expedition? One of the problems of course is that there is plenty of ice, but few exposures of rock. Wordie took measurements of ice thickness and movement; he was a meticulous recorder. To get geological specimens he would find pebbles in the stomachs of penguins.

He then returned to academic life in Cambridge, eventually becoming Master of St John's College. He went on nine more polar expeditions in the 1920s and 1930s and led many University Summer Expeditions. Cambridge seems to have attracted students who were keen on exploration. Lawrence Wager, profiled in the last Newsletter chose that university, and it was here that James Wordie met scientists who had been on Scott's expeditions. Perhaps students chose Cambridge because of its tradition of exploration and the strong Climbing Club, and it certainly seems to have been a hotbed of enthusiasm. It was here that Wordie was to be tutor of *Vivian Fuchs*, who went on Wordie's 1929 Greenland expedition, and then led the Commonwealth Transantarctic expedition of 1957/8. Fuchs made no secret that his geology degree was simply a means to pursue his interests in the outdoors.

Sir James Wordie became the elder statesman of Polar Exploration; he helped plan the 1953 Everest expedition and continued to influence proceedings until his death in 1962. *Sir Vivian Fuchs* died in 1999 aged 91, and that probably signifies the end of the golden age that was so greatly influenced by geologists. ■



Sir Vivian Fuchs

Bill Groves

Field Meeting Report

Saturday 14th March 2009: Fieldtrip to Huntley, the Forest of Dean. Led by Dave Owen, Gloucestershire Geology Trust.

The day started out cloudy when I met Dave Owen at the Country Garden Centre outside of Huntley at 10:00. The aim of the trip was to walk a new geological trail put together by the Gloucestershire Geology Trust. The route of the trail is approximately 6 miles long and takes in several quarries and views over the Severn Vale, passing through a geological sequence of Ordovician/Silurian to Triassic age. From the Country Garden Centre we walked westwards through Huntley Churchyard and approximately 100m along the A40 to Acres Quarry, which sits at the entrance of a Geological Reserve on Bright's Hill. The quarry's origins are unknown and here we saw a typical red brown outcrop of Triassic Bromsgrove Sandstone, which forms some of the youngest strata seen along the trail.

Following the trail into the reserve we reached Huntley Quarry, which is looked after by trust members and through voluntary work. On the western side of the quarry are the Huntley Quarry Beds, which sit on the Ordovician/Silurian Boundary, and our first stop took in an outcrop called the Roadside Cutting. The base of this outcrop is hard grey competent fine sandstone comprising volcanic deposits, granite and siltstone probably laid down in water. A layer of grey heavily sheared siltstone overlies the sandstone. It contains volcanic material and minerals, quartz, mica, glauconite and chlorite, and is believed to have been deposited in a marine environment. A distinctive yellow-green layer within the siltstone indicates upward weathering by water that collected at the boundary with the underlying sandstones into the overlying siltstones. More sandstone beds overlie the siltstone layer. The beds dip away to the west at approximately 1°.

Within adjacent outcrops, the Huntley Quarry Beds consist of alternating sequences of sandstones and siltstones. The sandstones vary between thinly laminated and fine ►

sediments to coarse clastic ones containing coarse glassy grains, feldspars, quartz, chlorite and other volcanic material. This variation in texture and composition has been explained by rapid deposition within fluvial and marine environments and also suggests that active volcanoes were present in the area at the time of deposition. Also evident from the outcrops of the Huntley Quarry Beds are vertical bedding, erosion boundaries, slickensided fault planes and thrust wedges associated with intense folding and faulting.

On the eastern side of the quarry the grey Ordovician/Silurian Huntley Quarry Beds give way to red brown Triassic Mercia Mudstone and Bromsgrove Sandstone and are separated by the Blaisdon Fault. This thrust Fault trends north to south, forms part of the Malvern Fault Complex and has been active since Pre-Cambrian times. Consequently younger rocks to the east have been thrust up and over the older rocks to the west causing the folding and faulting seen in the Huntley Quarry Beds in the west of the quarry. During the Permian the fault acted in reverse as a normal fault down throwing the rocks to the east, along the line of the fault, by approximately 2 km. Looking east the ground falls away to the low lying ground of the Severn Valley and to the west it undulates as a series of hills and valleys including Bright's Hill and May Hill.

From Huntley Quarry the trail continued west through the geological reserve uphill to Bright's Hill Quarry, passing native British daffodils and early bluebell shoots. Bright's Hill Quarry contains more heavily folded and fractured sandstone beds comprising fluvial coarse sands but with no volcanic clasts. They are fossiliferous and younger than the Huntley Quarry Beds we saw previously. Interbedded within the sandstone beds were layers of palaeosol and overlying the sequence was a layer of head deposits that in other parts of the reserve have been measured to approximately 3.00m thick.

Dave told me that the sequences comprising Bright's Hill belong to the Huntley Hill Formation, and this makes up the lower part of the May Hill Sandstone Group. The upper part of this Group is the Yartleton Formation forming May Hill to the west of the reserve. This is finer grained and more fossiliferous.

Heading south and west from Bright's Hill Quarry we followed an old quarry track to Far End Cutting to view the base of the May Hill Sandstone Group, which comprised a weak, coarse conglomerate. Here the conglomerate beds were separated by a wedge of mottled grey and orange brown clay with angular to rounded, fine to coarse conglomerate gravel. Although its origins are uncertain one idea as to how this feature formed is by ice pushing the beds apart to leave a gap which was later infilled as the ice melted forming a wedge.

From Far End Cutting we continued southwards, leaving the geological reserve, and up a steep bridle path onto Huntley Hill. Here we had good views over the River Severn as it meandered its way south to the Bristol Channel. We could see Barrow Hill, sitting at the centre of the largest meander, which is Lower Jurassic in age. The eastern edge of the Hills we could see to the south represents the line of the Western Boundary Fault as it headed south towards North Devon. Following the bridleway and trail west we passed the head of the Slad valley, to the south. Dave has a hypothesis that the valley forms the soft core of the Huntley Hill anticline bounded by harder rocks, of Ordovician/Silurian age to the east and west, but this idea has yet to be investigated and confirmed.

Past the Slad Valley, the trail headed south west, down hill back towards the A4163 and through the western limb of the Huntley Hill anticline. During our descent we passed from thinly bedded limestone and mudstone (Woolhope Limestone) of the Llandovery Series through Coalbrookdale Formation (or Wenlock Shales) to Lower Wenlock Limestone (Nodular Member) of the Wenlock Series. The sequence was not well exposed along the route and represents a marine transgression from a sediment rich fluvial environment to a stable marine one.

From the A4163 we looked westwards to the low lying valley of Longhope Brook, which has carved its way through a ribbon of Ludlow Shales too thin to have much impact on the landscape. From the valley the ground rises up in to wood covered hills of Devonian Old Red Sandstone and still further west a ridge of quartz conglomerate forms the edge of the Forest of Dean. ►

From the A4163 the trail followed a path northwards along the eastern edge of the Hobbs Quarry, a designated SSSI. The quarry is long and thin with the worked face to the west and the waste to the east, along which the trail continued following the western limb of the Huntley Hill anticline. Limestone of the Nodular Member outcropped along the path and dipped westwards. It was extracted in the past and converted to lime in a limekiln, in Kiln Wood, located in the north of the quarry, for agricultural and building purposes. The Nodular Member is rich in fossils including corals; *Favocites*, *Heliocities* (chain corals), Rugose corals, brachiopods, gastropods and other Silurian reef fauna. Beyond the limekiln recent vegetation clearance work by a local ecological society had uncovered several tall bioherms with Nodular Member limestone draped over them.

From the northern end of Hobbs Quarry we followed the trail north eastwards across fields towards Dursley Cross Farm. The trail then crossed back over the A40 and took us back onto Bright's Hill into the geological reserve, past Bright's Hill Quarry and Huntley Quarry and back via Huntley Church to the garden centre.

The Gloucestershire Geology trust hope to publish a guide for this trail shortly. Meanwhile I would like to thank Dave Owen for a very interesting day and have been promised a trip to the Cotswolds for next year. ■

Andrew Harrison

Geobabble

Geobabble has often dealt with the use, and misuse, of geological terms. Misuse or misunderstanding increases when popular media outlets are reporting a geological find or event. This often occurred when the tragic recent earthquake in Italy was widely reported. The term *epicentre* was used instead of *focus* to mean the subsurface point of origin of the event; it was also used to mean the nearest populated area to the epicentre. When geologists are talking to each other about earthquakes, they would expect that 'epicentre' was used strictly to mean the position on the Earth's surface directly above the focus; but does it really matter if the media are not quite so fussy? The important thing is to report the event from a human viewpoint and to try to explain, scientifically, the causes. A loose use of terms does not matter, only a most extreme pedant would object.

But what of *global warming* and *climate change*? There is so much discussion of these I think that it is important to know what they mean. Before I tried to find definitions of these terms on the net, I understood *global warming* to mean increases in atmospheric and oceanic temperatures related to the greenhouse effect. The perception is that this is related to human activity. *Climate change* I understood refers to all facets of the climate, not only temperature. It would include precipitation and wind systems and tends to be a long term effect. It is a natural process. The two areas do have some overlap, a greenhouse effect can be caused by natural processes and global warming produced by human activity in the short term can contribute to climate change in the long term. However in my mind the two terms mean different things.

Now that I have looked at definitions on the net, it is quite obvious that many would not agree with my definition, indeed I am sure that many members reading this will have criticisms. I will not go through the definitions, you can *Google* them for yourself if you have a spare half hour. Quite obviously many think that they both mean the same thing and are interchangeable. Let me just illustrate by quoting the definitions as given by the *Virginia Department of Minerals Mines and Energy* in the United States. (<http://www.dmmr.virginia.gov/DE/glossaryterms.shtml>). Global warming is: "A popular term used to describe the increase in average global temperatures due to the greenhouse effect." Yes, I can go along with that. Climate change is "A term used to describe short and long-term affects on the Earth's climate as a result of human activities such as fossil fuel combustion and vegetation clearing and burning." No, I am not keen on that, and 'effects' is misspelt – or am I just being a boring pedant? ■

Bill Groves

Members' Forum

Letters/emails

I have a query: Wasn't the Geological Society of London founded in 1807, making it bit older than the Black Country Geological Society (see page 3, Newsletter 194)?

Alex Dent

Alex is quite correct: the oldest geological society in the world is the Geological Society of London which was a posh dinner club for the upper class scientists of the day. The Dudley and Midland Geological Society was the first in the region. ■

Graham Worton

On tour with the CBSO

As a musician with the City of Birmingham Symphony Orchestra I travel to many places. Sometimes our tours are so hectic that we have no chance to see the places we visit, like the European tour we did a few years ago where we performed 5 concerts in 5 days - in 5 countries! Fortunately our most recent trip to Spain was more pleasant. We spent the Easter weekend in Cuenca, which is about halfway between Madrid and Valencia and is at a height of nearly 1000m. I have some good friends in the orchestra who had brought their two teenage boys on the trip and had hired a car. They kindly invited me to join them for a trip into the countryside on our free day. I suggested that we visited the Ciudad Encantada (Enchanted City), about 30km from Cuenca which I had seen mentioned in a recent edition of Down to Earth (Feb. 2009).

The Ciudad Encantada is at 1400m and it had been snowing the day before, but we were lucky to have a fine day for our visit. There was a €3 charge to go in but there was very little information about the geology. We found one small board which was translated for my benefit (the whole family speak Spanish!) The rock, it explained, was Cretaceous limestone which had been dissolved by rain, and caves had formed. The caves had eventually collapsed leaving the strange shapes that we see today. I suspect that there was more to it than that, as the Down to Earth piece mentioned that the top layer is dolomite and is harder than the layers below. It certainly seemed to me that the top layer was a hard grey limestone with a karst surface and the layers below were more red in colour and I think had more silt in the limestone.





If you would like to see some more pictures I have put some on my web server at:
<http://johnschroder.homelinux.org/Spain/Cuenca.php> ■

John Schroder

Why not visit our website at: www.bcgs.info

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Please send material for the next Newsletter to:

julieschroder@blueyonder.co.uk

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