The Black Country Geological Society

NEWSLETTER No. 183
JUNE 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 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.

COPY DATE FOR NEXT NEWSLETTER IS 13th AUGUST 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.

MONDAY 24TH SEPTEMBER 2007 (*Indoor meeting*)

CONVERSAZIONE.

Global Warming – Should We Worry?

Introductory speakers:

- The $C0_2$/Temperature graph: Martin Normanton
- Temperature changes in the Geological record: Gordon Hensman
- Post-glacial changes in climate over the last 10,000 years: Bob Buckie
- Astronomical influences on climate e.g. Milankovitch cycle: Barbara Russell

Everyone is invited to take part in this forum which is the second such event. Last year it proved to be very well worthwhile. If you have something to say – even if it is a bee in the proverbial bonnet – come and say it.

SATURDAY 29TH SEPTEMBER 2007*(Museum visit)*

Leaders: Andy Harrison and Mike Williams

The Natural History Museum, South Kensington

Further details to follow in the August Newsletter. Please note that the trip to NHM planned for earlier in the year has been cancelled, so this is the only trip planned.

MONDAY 29TH OCTOBER 2007 (*Indoor meeting*)

Speaker to be arranged

MONDAY 31st NOVEMBER 2007 (*Indoor meeting*)

Members' evening

Once again a pot pourri of members presentations, and an opportunity for anyone to bring specimens, pictures of all sorts, even poems! And, of course SEASONAL REFRESHMENTS.

LOOKING FORWARD - fieldtrip

October:

Possible trip to the Whitman's Hill Quarry in the Malverns, further details to follow.

Gordon Hensman and Andy Harrison

OTHER SOCIETIES

SHROPSHIRE GEOLOGICAL SOCIETY
MARCHES FESTIVAL OF GEOLOGY

Registration is now open for the ***Marches Festival of Geology Symposium*** in Ludlow on Thursday 13th September. Deadline for the reduced rate (and with lunch included) is 31st August. Advance registration for the one-day Symposium should be made with the SGS Treasurer:

David HT Smith,
25 Grange Road,
Shrewsbury.
SY3 9DG email: david@thursfieldsmith.co.uk

Cheques should be made payable to The Shropshire Geological Society.

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

Further details are at:
www.shropshiregeology.org.uk/festival

EDITORIAL

Our society is an affiliated group to the Geologists' Association, the leading nationwide body for geologists both amateur and professional. The most recent organisation to become affiliated is called **Discovering Fossils,** and we had an email from Roy Shepherd who organises the group asking us to put a link to www.discoveringfossils.co.uk from our BCGS website. If you have any interest in fossils, as I am sure you do, this site is well worth a visit with a multitude of links and excellent photographs, as well as descriptions of sites including the all important information about access and safety.

Discovering Fossils is led by a team of three, Roy Shepherd comes from a background of Consumer Advertising and his two colleagues are from professional geology and Primary teaching; an ideal combination. This organisation has over 1,000 members from across the country, and its membership is growing daily. It hopes to attract all with an interest in fossils from the starting amateur through to the professional palaeontologist, but looking at the website you can immediately see the attraction for young families and budding palaeontologists.

Forthcoming events include visits to the Cotswolds, Charmouth and Bracklesham Bay, and these localities indicate that this group is heavily orientated to the south on England. The website has reviews of the best fossil localities, and it has detailed descriptions of 39 localities, largely located in the southern counties, and only six older than the Jurassic. Living in the Black Country I first looked for the Wren's Nest, only to find that it was not mentioned, indeed the only Silurian locality cited is Wenlock Edge. However, we should not let this detract from what is a terrific resource that joins the band of organisations that is trying to raise the profile of geology, particularly amongst young people.

Bill Groves

MEETINGS' REPORT

THURSDAY 26TH APRIL 2007

Geological Conservation Seminar
Dudley Museum and Art Gallery

The day was split into two meetings comprising a morning indoor seminar followed by an afternoon field meeting. *Graham Worton* opened the morning session at 10:00am and thanked everyone for attending.

Dr Colin Prosser (Natural England) gave the first presentation of the morning on Geological Conservation legislation and policy. He explained how Britain had not only been a leading country in geoconservation but also how local authorities have been involved from the beginning. Early conservation legislation and policy, in England and Wales, began in 1947 and focused on conserving sites of basic natural interest. Over the years these evolved to include geoconservation sites such as RIGS - Regionally Important Geological (and Geomorphological) Sites and more recently Geological Heritage Sites, European Geoparks and Local Geodiversity Action Plans (LGAPs). These sites combine geological interest with the roles of local authorities, planners, and local communities to help with geoconservation.

Graham next spoke about the importance of geoconservation sites and gave a presentation on the Black Country Geodiversity Action Plan (BCGAP) which, launched in 2006, covers the four Metropolitan Boroughs of Wolverhampton, Walsall, Sandwell and Dudley. Through a number of objectives the BCGAP aims to provide a positive contribution to the enrichment of the Black Country environment and quality of life by conserving, enhancing and managing the regions geological heritage and diversity for the benefit of all. Before finishing Graham gave a short presentation on the plans and progress for the Black Country Urban Park Bid including the Wren's Nest/canal tunnels flagship project. Currently named 'Strata' this project is one of the final six short-listed projects from around the country and has gone forward into the next stage of the competition to secure BIG lottery funding, This year's BIG scheme, called Living Landmarks, offers up to £50 million to a single project selected by TV public vote towards the end of 2007.

The final presentation of the morning was given by *Dr Abigail Brown* (Herefordshire and Worcestershire Earth Heritage Trust) on the history and conservation of Whitman's Hill quarry in the Malverns. This quarry provides another excellent example of the Silurian Wenlock and Coalbrookdale Formations and has had a strong link with the community of Storridge since the 1800's. Many groups have various conservation and research interests in the quarry, and the BCGS is planning to have a fieldtrip there in the near future.

After lunch Graham led an afternoon field meeting around the Saltwells Nature Reserve, to the north of Quarry Bank, where we were joined by the Birmingham Carboniferous Club, which specialises in various aspects of the Carboniferous, with members from all over Europe. Graham showed us the Silurian, Carboniferous and other geological features left behind as a legacy from the industrial past of the Saltwells area. Much discussion, with good specialist input, especially about Carboniferous sedimentary geology was had amongst the group. Conservation has not only centred on geodiversity but also on the industrial history and ecology of the area. As with all conservation sites Graham pointed out the issues surrounding keeping the nature reserve open to the public whilst dealing with problems of site protection, education and health and safety. The field meeting finished at around 15:30 after what had been an interesting and very educational day.

Andy Harrison

SATURDAY 28TH APRIL 2007 *(Field meeting)*
Leader: Alan Bates (Shropshire Geological Society/OU)

Wenlock Edge

This trip started at the National Trust car park, outside Much Wenlock on the Church Stretton Road, and the weather was gloriously warm and sunny. The plan for the day was to meet with

Alan Bates who was to show us around the Coates and Lilleshall Quarries on the Wenlock Edge. Unfortunately a slight technical hitch meant a change of plans and with time to spare, before we met up with Alan, we took a short walk along the Edge led by Mike Williams. En-route we stopped to look at some outcrops and discuss the origins of the Wenlock Edge and the corals that form it. Our route finally ended with a view overlooking Coates Quarry and beyond over Hope Dale, where we spotted orchids growing next to the path. Then it was time to head back to the car park and to go and meet up with Alan Bates in the car park of the Wenlock Edge Inn.

The Wenlock Edge forms a northeast-southwest ridge, or cuesta, from Much Wenlock, in the north, to Craven Arms, in the south. The northwest facing scarp slope of the ridge looks out over the low lying valley of Ape Dale and over to the Pre-Cambrian and Cambrian hills of Caer Caradoc, the Lawleys and the Long Mynd. To the southwest the ground gently slopes away, along a dip slope, down into Hope Dale before gently rising again to form the slightly higher ground of View Edge. The topography from the Long Mynd, in the west, to View Edge, in the east, is controlled by the underlying geology which gently dips towards the east. The Wenlock Shale and Wenlock Limestone form the low ground of Ape Dale and the high ground of Wenlock Edge which belong to the Wenlock Series which derives its name from here. Ludlow Shales form the low ground of Hope Dale and Aymestry Limestone forms the high ground of View Edge which belongs to the Ludlow Series.

After meeting Alan Bates at the Wenlock Inn and having some lunch we went to look at Ippikin's Rock, on the scarp slope of Wenlock Edge, where we had a clear view over to the hills in the west. Ippikin's rock is the southern most, of a series of patch reefs, occurring along the Wenlock Edge that continue northwards as far as Ironbridge where they run out. Like most patch reefs it is built up of stromatolites and corals; Heliolites, Favosites and Halysites, set in a matrix of calcareous mud, and beds of bentonite, which can be traced as far as Wren's Nest, in Dudley, and Whitman's Hill Quarry on the Malverns. The surface of Ippikin's rock has been weathered and is now covered by thin deposits of tufa and lichens.

The Wenlock Edge patch reefs, such as Ippikin's Rock, are believed to have grown furthest away from land on the continental fringes of a shallow tropical sea that lapped up against the Long Mynd, Lawleys and Caer Caradoc to the west. At the end of the Long Mynd sea stacks, caves and bays have been identified. The rate of growth of the patch reefs is believed to match that of the depth of seawater due to some of the corals having a symbiotic relationship with algae that restricted them to the photic zone of the water column. However like all good theories in geology this one is now being questioned.

After Ippikin's Rock we took a short drive down the road to Lilleshall quarry on the eastern side of the dip slope of the Wenlock Edge, where quarrying was made easier because of less overburden. Although no longer a working quarry Lilleshall, like many of the Wenlock Edge quarries, was worked for its purest limestone for use in the agricultural and iron industries. Coates Quarry remains a working quarry today but the quarried rock is mostly used within the construction industry. The western edge of the quarry, where the main road runs, had to be partly backfilled after quarrying activities resulted in destabilisation along the bentonite beds, which in turn began to undermine the road. On the way into the quarry we were given the chance to look for fossils within piles of the Ludlow shales, referred to by the quarrymen as 'Blue', left by the road side and within the quarry itself Alan showed us more good examples patch reefs.

I would like to thank Alan for giving us an interesting days visit to Wenlock Edge and hope he learnt as much about the Wenlock Edge and Limestone as we did. Alan has promised to lead more fieldtrips for the society and I hope to arrange more trips to include the Shropshire Geological Society in the future.

SATURDAY 28TH APRIL 2007 *(Field meeting)*

Leader: Dave Owen (Gloucestershire Geological Trust)

Tintern Quarry, Forest of Dean

Our visit to Tintern Quarry saw 8 members and our guide, Dave Owen, arrive around 11:00 a.m. having driven through showers and a maze of country roads. Donning of waterproofs encouraged the sun to appear and we were only hit by a couple of light showers during the day.

The quarry sits overlooking the River Wye which was worked for its limestone, mainly used as aggregate, up until the 1960's when it closed. The Gloucestershire Geological Trust is currently working on the geoconservation aspect of the quarry which, although not complete, nicely illustrates a good section of the Lower Carboniferous Limestone sequence stratigraphy.

First of all we walked down into the bottom of the quarry, with its walls rising dramatically upwards, to look at the Lower Dolomite and Crease Limestone, the oldest Lower Carboniferous units represented here. The rest of the day involved following a partly wooded logger's trail, in bad need of repair in places, taking a closer look at the stratigraphic units making up the Lower Limestone Carboniferous sequence, represented here, and discussing what we were looking at. In general the sequence comprises:

UPPER DRYBROOK SANDSTONE
– Very thin deposit seen at the end of the trail overlying the Lower Drybrook Limestone.

LOWER DRYBROOK LIMESTONE
– Light grey, sometimes oolitic limestone with abundant fossils and shell fragments and occasional evidence of solution erosion.

LOWER DRYBROOK SANDSTONE
– Generally a fine orange brown thinly laminated sandstone which in parts is interbedded with palaeosols, mudstones and conglomerates. Trace fossil evidence; worm burrows, bioturbation and ripples, are also found in this unit.

WHITEHEAD LIMESTONE
– Light blue grey fine grained limestone and dolomites, containing stromatolites, interbedded with green and brown terrestrially derived shales and a dark red and green palaeosol forming the top of the unit.

LOWER DOLOMITE AND CREASE LIMESTONE
– Dark purple grey limestone with stylolites and occasional chert bands. Distinguished by calcite alteration to dolomite by magnesium rich brines, and iron mineralisation infilling cavities respectively.

LOWER LIMESTONE SHALE
– Not represented

The sequence is representative of a marine regression from shallow tropical seas to estuarine and deltaic environments during the Lower Carboniferous in response to the land being uplifted. It is believed that cracks, discontinuities and cavities occurring within the Lower Dolomite and Crease Limestone, during their formation, were later infilled by dolomite and iron rich deposits; Haematite and Goethite, by precipitation from acidic iron rich water flowing / percolating down from the Coal Measures above. These deposits were later exploited by man from the Iron Age onwards and early mines, or Scowles, can be found dotted around the Forest of Dean today.

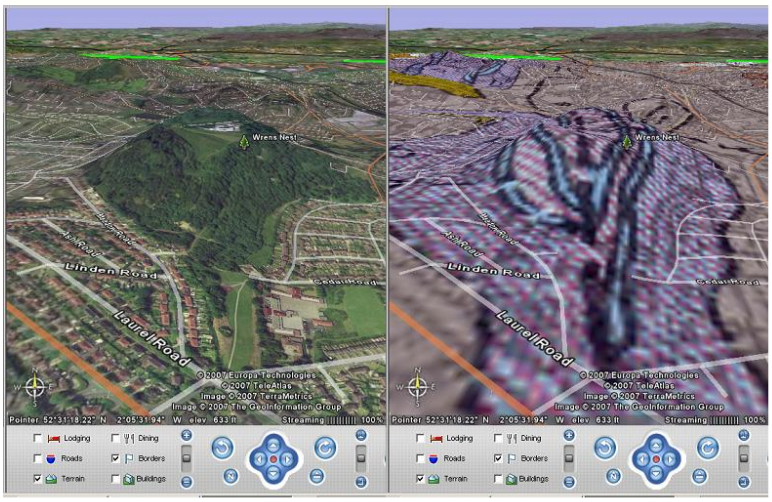
I would like to thank Dave for an extremely interesting day out, which was an education to many of those who attended, and hope that we are able to visit more Gloucestershire Geologist Trust sites in the future.

Andy Harrison

FROM OUR MEMBERS

From Graham Hickman: Google Earth and the Geologist

I have recently been using Google Earth to retrace my steps on a Spanish field trip I had been on over 10 years ago. I had a number of rock samples which were collected from locations marked on a Xerox copy of a local geological map. By scanning the map as an image file, I was able to display it as an overlay in Google earth. I was able to orientate the map using road patterns and town names and was thus able to confirm the geographic coordinates of the collection sites. Google Earth is a free software application which allows access to high resolution satellite images of the earth, available on the internet. The user can turn the globe and zoom into any region of the world to view the images. Roads, railways, rivers and other features can be overlain to help one locate a feature of interest. The images are so good you can see people, cars and your own home! In addition the images can be tilted and draped over an exaggerated topography to simulate a 3D view.



Google Earth image
Wrens Nest looking N

Same view with geological map
Overlain on 3D topography

The ability to overlay and locate other maps as overlays on the satellite images has much potential for the geologist. Below is an example of the Dudley area with the geology map overlain. The transparency of the geology map can be varied so at to view different feature and relate these to topography and other surface features. Such techniques are useful to tracing the surface expression of faults and formation boundaries. The same overlay feature can also be used to look at old maps and compare to present day satellite images.

I was aware of an old roadway from a line of 100+ year old trees in my neighbours back gardens, Google earth was able to plot both the current and old maps and I was able to zoom in and out, looking for other interesting features. If you haven't tried it yet, the application can be downloaded at http://earth.google.com/ It is provided free by the owners of the search engine 'Google'. For best results the computer must have a fast processor (minimum Pentium 3 - 500MHz) running windows XP and with a broadband internet connection.

Graham Hickman

GEOLOGY IN STAMPS

The fine stamp illustrated here is from a set of 15 from the British Antarctic Territory printed in 1990. Each one in the set contains an excellent illustration of a fossil. The Genus is printed on the stamp, and there are a wide variety of types and ages used, from trilobites to recent forms. Presumably they are found in the British Antarctic Territory, and the ammonite illustrated here called *Gunnarites* certainly is. It is a Cretaceous ammonite from the Campanian stage; 83 – 71 ma. In this country it was the time of the end of the Chalk seas. It is found in the Lopez de Bertodano formation at Lamb Cape on Vega Island. If you look in an atlas, as I had to, Vega Island is North West of James Ross Island which is at the Northern end of the Antarctica Peninsular. This area has a rich trove of fossils which has been studied extensively in the last 20 years. It is particularly interesting as this area contains rocks that go into the Tertiary and so include the extinction event. Many of the fossils found in the area are dinosaurs.

While researching this fossil I came across a very interesting site describing the area; you may like to look at: www.antarctica.ac.uk the web site of the British Antarctic Survey.

Bill Groves

GEOLOGICAL PLACES

Two fine photographs of geological places from Peter Twigg. The first is from Portishead, on the coast west of Bristol. It is a locality very popular with geologists, with abundant fossils, but it is a place that I am not familiar with. The photograph is a fine view of an unconformity with a basal conglomerate sitting upon a sequence of current bedded sandstones or siltstones. In this area you find Devonian, Carboniferous and Permo-Triassic rocks.

The second picture is from Villinganes on the north coast of Iceland, which Peter describes as his 'second favourite country' after Switzerland. It is typical of the spectacular scenery wherever you go on this island. I do not know the detail of the geology in this view, but I am sure that basalt features .

Bill Groves

GEOBABBLE

It is always frustrating when terms that we have grown up with change as geological knowledge moves forward. So many of the fossil names that I learnt as a student have now been relegated to become synonyms, and I still cannot get out of the habit of using the splendid terms Bunter Pebble Beds and Upper Mottled Sandstone instead of Kidderminster Conglomerate and Wildmoor Sandstone in the Sherwood Sandstone Group.

But these are mere technicalities when compared to lithological terms in sediments. As we know the Dudley Limestone…oops!! Much Wenlock Limestone, has various types of limestone, one of which Murchison called an *argillaceous limestone.* He uses this term in his book *Siluria* and lets it describe the shales associated with the main limestone beds. He describes the Nodular Beds as *impure and nodular earthy limestone with much shale*. Interestingly he consistently uses the term *calcareous spar* when talking about calcite.

Argillaceous is a useful adjective when describing fine grained sediments, muds and clays, as was arenaceous and rudaceous for the coarser rocks. The Central England handbook of 1969 uses *calcareous mud,* this really reverses Murchison's term as calcareous now becomes the adjective and mud is a much easier noun to use than argillate, if it exists (an *argillite* is a metamorphic term which confuses the issue further!) But it can get more confusing, in the 1947 Dudley and Bridgnorth handbook the limestone in Dudley is described thus: *'The Wenlock Limestone is in two bands separated by rubbly and nodular limestones and calcareous flags'.* We now have *flags* used instead of shale.

We must remember that these rocks could only be studied with optical microscopes, a hand lens and a bottle of acid. When I was learning my geology in the late 1950's we were told that if you cannot see the grains with a handlens and it fizzes it's a *calcite mudstone.* Others used the term *calcilutite.* In the sixties came the electron microscope, and the realisation that these grains that were too small to be seen optically could be identified, and they are microcrystalline calcite and along came the word ***micrite.*** This is a word that I am very happy to use; it is a noun but has *micritc* as an adjective if necessary, however I still slip into using calcite mudstone occasionally, particularly when in Pembrokeshire looking at the Carboniferous *Lower Limestone Shales;* oh dear, there's another version; limestone shales.

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 August Newsletter, please send or give it to one of the Editorial Team by ***Monday 13th August 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 August Newsletter is **Monday 13th August 2007**

BCGS Website at www.bcgs.info

AND FINALLY

For some time we have been looking for an opportunity to put photographs of the committee in the Newsletter. It is a common practice in most organisations to display 'mugshots' so that you know who these people are. This picture from Peter Twigg is not quite what was intended but I think is a splendid substitute, it could be entitled, our Chairman emerging from a hole in Linley Caverns, Barr Beacon, Walsall. However, whatever we choose to call it is good to have a picture of Alf in the Newsletter at last.