NEWSLETTER No. 170
April 2005

The Black Country Geological Society

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.

PLEASE NOTE THE CHANGE OF DATE OF OUR NEXT INDOOR MEETING

SATURDAY 7TH MAY 2005 *(Field visit)*
National Stone Centre, the Peak District Mining Museum and Temple Mine. The limestone landscape of Derbyshire.
Leader: *Andrew Rochelle*

Meet at the National Stone Centre between Cromford and Carsington, south of Matlock at **10.30am**. GR: SK 278 550. Free trail and quarry views; exhibition; shop and refreshments; toilets.

12.45pm. Matlock for lunch; shops and toilets.

13.45pm. Meet at Museum entrance. Guided visit to Peak District Mining Museum and Temple Mine. Price: £5 for adults and £4.50 for concessions. The Society will fund 50% of entry price.

16.30pm. Homeward bound.

MONDAY 9th MAY 2005 *(Indoor Meeting)* NEW DATE

The fascinating minerals of Northwest Scotland, by Spencer Mather.

As you will know, Spencer is one of own members, and his lectures are always relaxed, amusing and highly informative. He will share with us his unparalleled knowledge of minerals from a part of the world that he knows well. An evening not to be missed.

18th - 20th – 22nd MAY 2005 *(Field visit)*

Weekend in Anglesey. Parys Mountain Mine.
Leader: *Bob Duncan*

Bob has booked *the West Bromwich Mountaineering Club Hut* from **Wednesday 18th May** to **Monday 23rd May.** Charge is £5 a night, sleeping bags required, self-catering facilities available. (There are cafés and pub meals in Beddgelert)
The hut is in the grounds of the Plas Gwnant Adventure Centre on the A498, 2½ miles NE of Beddgelert. **GR: 630 506** Enter white gate by the lodge at the end of the car park, the hut is 150yds on the left. If you prefer to camp there is a site by Beddgelert; GR: 595 486, an attractive site by Llyn Gwynant.

If you are going to stay for the four days, Bob suggests that the weather may dictate the venues. The hut is at the start of one of the main routes up Snowdon, and there are copper mines, slate quarries and fossils within walking distance. In bad weather there is the Dinorwic Slate Museum, and to go down the Blaenau Ffestiniog slate quarry is recommended. The pump storage scheme at Llanberis where you go into the heart of the mountain by bus is also impressive.

Key information for Saturday 21st May Meet at **11am** at the **Parys Mountain Heritage Centre,** Amlwch Port, Amlwch, Anglesey. GR: 453 935 (OS Explorer Sheet 263). Mr Lionel Johnson will give a talk about the mine before we visit the site. The centre has an exhibition about the port and mine. ***Unfortunately trips down the mine are only available on a Wednesday evening.*** There is a car park, a café and toilets.

Information from: Bob Duncan, 01384 256733; Andrew Rochelle 01952 299136.

MONDAY 6TH JUNE 2005 *(Indoor Meeting)*

Wenlock Limestone by Liam Herringshaw.
This promises to be an interesting talk on our important local formation.

SATURDAY 18TH JUNE 2005 *(Field visit)*

The RIVER STOUR - from Source to Confluence. A "Pot Pourri" of History, Geomorphology, Topography, Geology, Industrial Archaeology and sheer enjoyment!
Leader: *Gordon Hensman*
Recommended reading:

- B.G.S. Central England

O.S.Maps:

- Landranger 1:50,000 Birmingham
- Explorer 1:25,000 Wolverhampton & Dudley

1. **MEET *10.30am***
Car park at foot of Walton Hill, Clent Hills. GR 943803
Walk to hill summit at 315m, (1026 feet). Clent Breccia - erosion resistant, on top of Halesowen Sandstone series.
Walk to source of Stour at St. Kenelms Church where a spring arises.
2. THE LEASOWES PARK. GR 974840
William Shenstone, one of the earliest landscape gardeners in the UK, landscaped this. Walk through the woods to another source of the Stour where a spring arises at the foot of a

sandstone escarpment. We may take lunch here - depending on time - so bring your packed lunches. There are no shops in the immediate vicinity.
3. FURNACE HILL. GR 968846.
Parking may be difficult here but there is a pub car park nearby, and a fish and chip shop! This is the location of a furnace and tilt hammer forge powered by the Stour.
4. CRADLEY FORGE. GR 934857 Dud Dudley's forge, which was washed away in a flood.
5. STAMBERMILL.
A small flood plain is developing here. Short stop.
6. ROAD to KINVER where Stour flows underneath GR 860848 (This is time dependant, and may be missed.)
7. STOURPORT. CONFLUENCE with RIVER SEVERN. GR813708
Things to observe. Severn/Stour terraces. These can be seen very clearly on the OS maps, and with careful observation and measurements can be seen well up towards the source at St. Kenelms.

MONDAY JUNE 20th 2005 *(Indoor Meeting)*

Quartz Rarities by Jan Sibsten of Dordrecht, (Mineralogical Society of the Netherlands)

This talk will look at the composition, crystal types, colours and many uses of this very common rock-forming mineral. It will focus on the very special and unusual varieties that are seldom seen or described.

SATURDAY 16TH JULY 2005 *(Field visit)*

Joint meeting with the Woolhope group to the Wren's Nest and Dudley Canal Tunnels. Leader: *Graham Worton*

Details to follow.

AUTUMN 2005 *(Field visit)*

North Wales day out by coach to Snowdonia, studying some geology and geomorphology. Visit to the Slate Museum and the Pump Storage HEP scheme at Llanberis.

Details to follow, but please express your interest to Andrew Rochelle.

EDITORIAL

Where do you go to see good dinosaur fossils? A question that is often asked, particularly by the young. Well, I suppose that the answer is the Natural History Museum in London, and every budding geologist would have to be taken there at sometime. But a closer option that is often overlooked, and an easier journey, is the Museum of Natural History in Oxford. If you check out its website on www.oum.ox.ac.uk you will see that dinosaurs form a centrepiece of its exhibits. The museum has the largest permanent dinosaur collection in the country outside London.

The museum itself is a fine Victorian gothic building and sits next to the Department of Earth Science of the University. Your first encounter with the animal is the reconstruction of *Megalosaurus* footprints, set into the lawn outside. Once inside the central court of the museum is dominated by two skeletons, one of the ubiquitous *Tyrannosaurus* and the other, one of the first dinosaurs to be described, *Iguanodon.*

However, there is a new exhibit on display; not a fossil as such, but quite an impressive reconstruction. It is a life size model of *Cryptoclidus,* a Lower Jurassic marine reptile. The same company that produced the monsters for the recent BBC series, 'Walking with Dinosaurs' made it. It is impressive.

Even if you are not particularly interested in dinosaurs, the museum is a treasure trove for a geologist. There is a large collection of rocks and minerals on display in addition to the traditional botanical and zoological specimens. It's worth a visit.

I am indebted to 'Oxford Today', the University magazine, for their permission to use their text, and to the Oxford Museum for their help and permission to use their images.

NB As the images use quite a bit of memory I have removed them to ensure that everyone con download the Newsletter. If you would like me to email the fully, colour illustrated Newsletter to you, please e-mail me)

Bill Groves

OTHER NEWS

1. **The offers that were made in the December Newsletter**, i.e. a proposed trip to the South Kensington Museum, a dinner/meal/social get-together for members - met with only 2 responses. We intend to continue to offer ideas to bring society members together - but only if members make the effort.

2. PROPOSALS FOR RE-DEVELOPMENT OF DUDLEY CASTLE HILL AND ZOO.

As most members are aware, a development firm, St. Modwens, based in Birmingham, made proposals for the above several years ago. They include the following:

A siege craft building in the castle close;
32 craft based shops around the castle;
A fitness centre;
Hotel;
283 houses on the eastern side of the hill, including the greenfield site of Peggy's Meadow - a designated SLINC;
An Origins building displaying dinosaurs;
A garden centre.

Although all is quiet at the moment, this does not mean that they have gone away. The proposals evoked a strongly hostile reaction from all concerned organisations and individuals, such as Friends of Dudley Castle, and a welter of hostile letters in the local press. As a result of this they have modified their proposals. The number of houses has been reduced and Peggy's Meadow saved and the siege craft building on the green shifted.

The B.C.G.S.Committee would like members to know of our response that was sent in February 2004 on your behalf.

We objected on the following grounds:

1. The development would have a permanent and detrimental impact on the geological heritage of Castle Hill, which would preclude any chance of World Heritage Status being conferred. It is the combined geological importance of Wren's Nest and Castle Hill, as manifest by their surface exposures as well as any underground interest that matters.

2. The development would have a detrimental and harmful impact on the designated Castle Hill Geological SINC, which in its regional/national importance outranks the overlapping Biological SINC and the Peggy's Meadow SLINC. This fact is completely omitted. The proposed housing would place unacceptable pressure on the geoconservation resource and the woodland area in general.

3. There has been no impact assessment, or, management strategy produced for geological conservation. The Geological Heritage and Interest is not confined to the underground features but includes the surface exposures that compliment, and in some cases, are superior to the equivalents at the Wren's Nest.

4. The Geological Code of Conduct has been disregarded. Adherence to the code would provide safeguards for the existing exposures and features, as well as provide opportunities for the recording of new and temporary features that might be expected to be revealed in the proposed development works.

This was sent to the Directorate of Urban Environment Dudley.
Any comments from members will be welcome.

Gordon Hensman

DUDLEY BUG STOLEN

You will no doubt have read in the newspapers or heard on the radio that the 'Dudley Bug' was stolen from the new DUDLEY UNEARTHED gallery, but if you are not located in the Dudley area or are one of our members living abroad the news may not have got through to you. Two specimens of Calymene blumenbachi were stolen, one of which was a rolled up specimen. Two youngsters forced a protective screen, but the fossils were returned the next day having been recognised by a more responsible person.

Two interesting side issues were thrown up by this incident. Firstly there was enormous local interest and indignation shown. It was the front-page lead in the Express and Star, a reward was offered, and the Museum and its fossils had a high profile for two or three days. The cynical view of this could be that it was good publicity! However, a further issue is, what should happen to a museum's collections? The Society's rock and fossil collection is housed there, and much of the main collection has been found or donated by members and former members, stretching back for more than a century. The replicas that can be produced today are of very high quality, and copies of the fossil illustrated can hardly be distinguished when viewed behind glass. Why not use copies, and keep the originals safely locked away?

This is the main issue. Members and the society do not donate specimens to the museum 'to be locked away'. They are to be used for viewing by the public, teaching, research and education generally. The Keeper of Geology at the museum is quite clear on this issue. "If the people of Dudley come to Dudley Museum to see a Dudley Bug, they want to see a real one, not a copy." I think that it is difficult for anyone to disagree with that sentiment.

Bill Groves

MEMBERS'EVENING 2004

It was originally planned to put all the presentations of this pleasant evening into a separate document, but we are now going to put them in the Newsletter throughout the coming months. We start with ***Ananda Shamo****'s* interesting talk about her visit to the Azores.

The Azores – the unknown islands

Lying in the Atlantic 900 miles west of Portugal, the Azores lies on a section of the Mid Atlantic Ridge, and consists of 9 inhabited islands. Corvo and Flores are on the American plate, while the others Sao Jorge, Graciosa, Terceira, Faial and Pico lie in a tight knit group, with Sao Miguel about 50 miles further SE. They lie at the junction of the North American, European and African tectonic plates, on their own Azores Microplate, possibly originated by a mantle plume. With the exception of Santa Maria, which is old enough to have some limestone sedimentary deposits containing algal fossils, the others are totally volcanic, thrown up from the deep ocean floor by the rift zone activities. We have deep submarine canyons here, and a mixing of ocean currents.

I was part of a small group of six including our guide and we visited five of the islands and stayed on three of them, on Soa Miguel, also known as the Ilha Verde, we walked to Sete Citades, a 550m high caldera in west Sao Miguel with two lakes coloured blue and green (when the sun is shining) due to algae in the water. It is the youngest part of Sao Miguel with two islets recently bridged by lava flows. A typical stratovolcano, its last eruption was in 1440, layers of ash, lapilli and pumice were seen in spectacular walls.

Next day we explored another caldera lake, 740m high Lagoa do Fogo – Fire Lake. This volcano last erupted in 1563, an explosive eruption that could be seen from Terceira. The felsic magma is close to the surface here, only 4km down – feel that!

The other area we explored on Sao Miguel is the famous hot springs area of Fumas and Povoaçao, a massive rambling caldera in east Sao Miguel. The Fumas Lake walk passes through many introduced trees including eucalyptus, and fringed with Azorean wild pink amaryllis – it's like Kew Gardens here! At the other end we come to an area where the ground is hot underfoot.

The locals dig holes here and bury large pots of 'Cozedas' casserole for several hours to cook. We had some later for lunch – delicious!

Among gurgling hot springs, mud pools and sulphur-encrusted rocks, there is also a large geothermally heated swimming pool set in parkland. It is brown with iron, but here we all swam in a luxurious 35^0. More visits to hot springs, colourful muds, and cold mineral springs, from where I collected water. This is one of the richest geothermal areas in Europe. Highest point is Pico da Vara at 1103m and the last eruption was in 1630.

Sao Jorge is a long and narrow central island of the archipelago, 56km long and up to 8km wide, obviously fissure-built with its central ridge of volcanic craters. Here I really felt I was on the Mid Atlantic Ridge rift zone, deeply mysterious. One of the features here are coastal villages built on flat areas called 'fajãs'. Looking slightly incongruous surrounded by steep cliffs, they are formed when landslides crash down the mountainside, forming sufficient land base for habitation to be built. Sao Jorge has some of the best fissures in the Azores, though no eruptions since 1808.

The third place we stayed at was Horta in Faial. Another peak looms large as we approach. Pico is another mysterious volcano, shrouded in ever changing cloudscapes, and always keeping its 'hat' on. At 2351m it is the highest mountain in Portugal. It has a flattish crater, the Pico Grande, which has fumaroles around its edges and a younger cone in the centre, Pico Pequino. Pico, too, is still active, though not actually erupting since 1718.

The south coastal areas, some of which we explored, consist of flat black pahoehoe ending in jagged rocky cliffs with some awesome caves, tunnels and blowholes. In rough seas these make for spectacular displays. Pico has a local industry of wine making, and a novel way of growing their vines behind small enclosures called 'maroiços', built of lava blocks to protect them from the wind. We visited a wine factory with old-fashioned log fired vats, and tasted several wines. Both the maroiços and the factory are national heritage sites, as are many of the old working industries of the Azores. Mt. Pico is a nature reserve – as are many of the volcanic areas. Law protects 13% of land in the Azores.

On Faial we visited the most recent eruption in the Azores, at Capelinos. Described as a Surtseyan eruption, it started in 1957, spewed lava for 1½ years and many thousand tonnes of ash, which added 2400 square miles to the land. Being soft, much of this is now already eroded away, and more will follow. But there was enough of it for us to climb up on top, through shifting desert dune-like conditions, dotted with lava bombs and lesser tephra – and a fair wind blowing fine dust around us on the lower slopes! On top of a somewhat more stable edge we all stopped at a crack in the ground that vented warm sulphurous gas.

I was unable to find a geology book as such, like the excellent Iceland book: but I managed to glean a few facts from various sources; the Azores Year Book at the Fayal Hotel; The Observatory of Volcanology and Geothermalism of the Azores, and from a magazine on the plane, but I have no idea how accurate they are!

Ananda Shamo

ANNUAL GENERAL MEETING
4TH APRIL 2005

There will be a full report of this meeting in the next Newsletter, but congratulations to *Alf Cole* on being elected as our new Chairman in place of *Graham Worton* who has stood down after leading us for several years. Congratulations too to *Bob Bucki* on being elected on to the committee to fill the place vacated by Alf.

GEOBABBLE

"Snowball Earth" is a piece of geobabble that was coined in 1992 to describe periods in the history of our planet when its entire surface was covered in snow and ice. Most geologists seem to agree that there were extreme drops in temperature about 630 and 750 million years ago, but there is some debate as to whether it reached a 'snowball' state. Some think that a scenario that

had oceans in the tropics unfrozen would be more likely, which has given rise to another geobabble candidate; 'Slushball Earth'. How it occurred is also being researched, the obvious ideas look at dust in the atmosphere that would reduce the sun's heat reaching the surface, something like a period of extreme volcanic activity, or the Earth passing through a cloud of interstellar gas.
An interesting piece of recent research (*Science,* vol308, p239) is analysing three cores drilled from central Africa. In them there is a concentration or; 'spike' of Iridium at about 630 ma. Iridium is found in space dust and constantly falls on the Earth's surface. At a time of Snowball Earth the Iridium would collect on the surface of the ice and then be deposited in one go, when the ice melts. This can not only act as a time marker but also support the 'snowball' rather than the 'slushball' idea for this time.

Bill Groves

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. 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 April Newsletter, please send or give it to one of the Editorial Team by ***Monday 6th June 2005.***

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