

## NEWSLETTER NO. 135

### JUNE 1999



# The Black Country Geological Society

The Society does not provide personal accident cover for members or visitors on field trips. You are strongly 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 in the Banquet Room (Dudley Suite) at the Ward Arms Hotel, Birmingham Road. Phone (01384) 458070. 7.30 p.m. for 8 o'clock start.

**SUNDAY 20 JUNE 1999** "Conservation - Protected Geological Sites within the Black Country" Leaders: Graham Worton & Alan Cutler - Black Country Geological Society. Meet at 10.30 am at NGR SP 051 982 in the lay-by beside the Garden Centre on the Sutton Road, Walsall. We will take a short walk to the Hay Head SSSI to look at works to set up a geological trail and to discuss the difficulties and benefits of doing so. You are advised to bring a packed lunch although it is intended that we will stop at a local hostelry for an hour or so to get refreshments and get refreshed before moving onto the second site at about 1.30 pm. The second site will be Pinfold Lane Quarry NGR SP 053 962. Parking is a little restricted in the lanes here, so it may be that we leave some vehicles at the pub for this site. Pinfold Lane Quarry is a second tier site (i.e. not an SSSI but a SINC i.e. Site of Importance for Nature Conservation). Here we will look at a good site, of value in terms of amenity and education. We will discuss the process of funding, recording and selecting such sites and about the scope of works still needing to be done. The trip should finish between 2.00 and 3.00 pm. Hard hats are advised for Pinfold Lane Quarry as loose pebbles fall regularly from rock faces. Boots are recommended for the trek to Hay Head.

**SUNDAY 25th JULY 1999** "Family Field Meeting" to Clearwell Caves, The Royal Forest of Dean's Iron mining Museum, Cinderford.. Leader: Catherine Eales. The Caves are 1.5 miles from Coleford Town Centre Follow the B4228 in the direction of St. Briavels and Chepstow. After approximately one mile, turn right for Clearwell (immediately past the Lambsquay Hotel). The sign for the coach and car park is clearly visible after a few hundred yards. NGR. SO 576092.

Set in an area of special landscape value, Clearwell Caves are part of an extensive network of ancient iron mines which completely surround the edge of the Royal

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Ann Nicholds B.A.,  
B. Phil. Ed. (V.I.)

Forest of Dean. The mines at Clearwell are still worked using traditional tools and techniques familiar to Freeminers working centuries ago. They are now the only working ochre mines in the British Isles.

The mines are part of a natural cave system tunnelled into by miners since the Iron Age, over 2000 years ago, in their search for ores to make iron as well as ochres for artists' materials and paint pigments. Red, yellow, purple and brown ochres are still produced and are available in the mine shop. Purple ochre or 'Mars Violet' is a particular rare natural pigment almost unique to these mines, being 93% Haematite.

Today visitors can see the ochre preparation room, engineering workshop and blacksmith's shop in the mine buildings and then explore nine impressive caverns descending one hundred feet beneath the surface. Guided tours last approximately one hour underground. Stout footwear is recommended. The Caves are not suited for the less physically able.

Meet at 11.00 am in car park, with the group accessing the mine at approx. 11.30 am. Adults £3.50, under 16 years £2.20. Bring packed lunch or use the tea room.

**SATURDAY 11 SEPTEMBER** 8.00 pm. Social Evening and Quiz "The Lamp Tavern" (Batham's Ales) Dudley. A chance for Society members (with non society companions if desired) to mingle and mix in a more informal manner than usual. Arrange a team and register your interest using the form at the end of the newsletter.

**MONDAY 20th SEPTEMBER** Lecture: "Catch a Falling Star- Meteors and Meteorites" by Barbara Russell (Society Member) Barbara is a past Chairman of the Wolverhampton Astronomical Society (affiliated to the British Astronomical Society and the Junior Astronomical Society).

Meteors and Meteorites form a very satisfying link between Barbara's two hobbies - Astronomy and Geology. Her interest in Astronomy goes back many years with Geology a comparatively new study.

Meteorites have an important role in the formation of the Solar System and the lecture will cover the history of meteors and theories of their origin, their composition and physical dimensions. Barbara will bring a few samples of meteoric material and if anyone has any other samples please bring them along.

**MONDAY 25th OCTOBER** "The Quaternary of the Isle of Man and the Northern Irish Sea Basin" by Dr. Roger Dackombe, Senior Lecturer in Environmental Science at Wolverhampton University. He has lectured to us on the Environmental Geology of Finland. His geological interests are Quaternary sediments and Applied Engineering Geology while his particular research interest is in the Isle of Man. He has researched glacial sediments and till sequences in the Isle of Man. He is Geological Consultant to the Manx Government for environmental questions and works with Liverpool University studying Manx archaeology in its geological context.

**MONDAY 15th NOVEMBER** "The Ice Age Fauna and Flora of Britain". by Dr Charles Turner of the Department of Earth Science at the Open University.

#### **PROGRAMME 2000**

**MONDAY 31st JANUARY 2000** "Brains Trust" An opportunity for you to bring along your queries, specimens, problems etc. to our panel of experts. Written questions submitted in advance to the Secretary will be welcome. If anyone has a collection of particularly interesting transparencies bring them along and we can arrange to show them during the evening. Non-members welcome.

**MONDAY 29th FEBRUARY 2000** "Canadian Appalachians - Ocean Closure and Links with the British Isles" by Dr John A. Winchester, Department of Earth Science, University of Keele

**MONDAY 27th MARCH 2000** Dr Hugh Torrens, Society Member, "James Ryan of Dudley (1770 - 1847) and the problems of introducing new ideas (both scientific and technical) in British mines in the early nineteenth century."

MONDAY 24th APRIL 2000 Dr Frank Moseley, "Military Geology in the Middle East"

### EDITORIAL

The World of the Sea Dragons exhibition at Dudley with its wonderfully displayed fossils causes me to ponder on the role of the fossil collector. Collecting is one of the most basic of human activities and essential to man's evolution and search for knowledge and understanding. It does seem a shame that teaching conservation is depriving children of such an effective way of learning and such a trigger mechanism for a detailed knowledge of the natural world.

Sutton Coldfield Natural History Society is undertaking a study of the flora and fauna of Sutton Park. Over 1000 species of Diptera (true flies) have been identified in the Park, mostly by one man. There are records of the presence of 2200 insect species, excluding the Lepidoptera. Surely such expertise begins with the urge to collect. And it is only by comparing lists through time that we can really know what changes are taking place in the environment. Did I detect a wistful note when Phil McNerny, writing of our recent field trip, refers to the brevity of the fossil search? Small boys are programmed to learn by collecting and the look and don't touch approach is, as most of us know, a very poor substitute. When I taught, the specimens in my classroom were unlabelled, very worn, scratched, and excessively tested with acid but the students knew them as familiar disrespected friends.

An item on the radio yesterday described huge queues and fights in toyshops on the delivery of the latest craze, "Beenies". (As this was a radio talk I may not have an accurate spelling!) Rich (and spoilt?) little girls reported ownership of more than seventy "Beenies". I am quite ignorant of the nature of "beenies" and happy to be so, but suspect that going in to the countryside to collect wild flowers when I was a child was a more satisfying activity than searching with parental cheque book for a special "Beeny" for which the marketing men have arranged a scarcity to artificially boost value.

The fossil collectors who provided specimens for Dudley's Exhibition have collected and preserved for posterity superb specimens, have gained expert knowledge of their subject, are passionate about their task and are so often reviled for their fervour (and for conflicts with the law). Conservation is of paramount importance but don't let us throw out the baby with the bathwater. The giants of nineteenth and early twentieth century Geology were collectors and to some we owe the fine collections housed at Dudley, Wolverhampton and in the Lapworth Museum in Birmingham. In order to decide what needs to be conserved it is first necessary to study what is present. How else can comparisons be made? The talents and knowledge of the enthusiastic amateur have in the past made an enormous contribution to knowledge and so much of that enthusiasm derived from youthful collecting.

### REPORTS

Lecture: Permian seas, Triassic deserts, Devonian Ice and Houses in holes in North Yorkshire by Dr Anthony Cooper, B.G.S. Monday 29th March 1999.

The Geology of the area was described in newsletter for February 1999.

Dr Cooper's talk was illustrated by a series of slides which were both dramatic and informative. The first picture showed a very large hole in someone's back garden, into which a brick built, tiled roofed, garage was about to collapse. The hole is the property of the home/garden owner, and if your neighbour's house falls into it you are not covered by insurance. Let buyer beware! Despite any frantic efforts to shovel in the odd spadeful of soil, (perhaps in an effort to prevent the neighbour's pet from disappearing some 9 metres underground) the hole will swallow up all you have to offer and then come back for more.

Why has a situation such as this become common in and around Ripon in North Yorkshire? the presence of highly soluble gypsum deposited in a rhythmic sequence provided us with the answer. Percolating water provides a sequence of caves, cavities and collapsed rock structures, as it does in limestones of karst regions. So highly soluble is the gypsum that a 3 metre square block which fell from a riverside rock face was completely dissolved in 18 months. The river itself had undercut the bank by 7 metres in 9 years. Vertical shafts, or pipes, allow water to reach the gypsum horizons, where dissolution occurs and breccia/glacial till collapses into the cavity. These pipes are

truncated by the advancing ice sheets of Devensian times, evidence that the pipes existed before glaciation. Striated lower limestones and Carboniferous limestones, also dolomites, confirm the passage of the ice. Small areas of ice left lying between the eskers and moraines of the retreating ice sheet were probably also a factor in the process of dissolution. It is at Ripon where water, fed from higher sources through inclined strata, draining to the River Ure, affects the gypsum. Water pressure is high, and a borehole driven into the ground could have a 1 metre head of water. Pumping water creates collapse, and both compression and collapse features occur. Cracked walls, broken roofs, and fractured canals indicate the problems of building in such a geologically hazardous area. Predicting such potentially dangerous sites is difficult, as current technology has neither sufficient penetration or spread to find pipes economically. Strong planning controls requiring a "ground stability" report have been imposed. Workers in Kurdistan are claiming to have much improved standards of detection.

Gypsum dissolves so readily in water that alabaster grave vases lose their ability to hold water. Don't keep one on your baby grand! Another curious feature is to be found in the "Dropping well" in Mother Shipton's Cave at Knaresborough. Here, objects hung inside the dripping waters are rapidly "fossilised" as the salts come out of solution. Dr Cooper narrated how he was approached to give credence to the story that if a baby was left in the well for 10 minutes a cast of the child could be obtained. Needless to say he declined the request, but please note the date on our report!

Typical karst scenery caused by gypsum dissolution can also be found throughout Europe, down to Spain and into Russia. In the Shanxi coalfield at Beijing, in Central China, similar dissolution problems occur. In Poland, where there is a very extensive cave system, peculiar surface features can be seen from the air. Circles of trees surround a collapse, looking like a group of ring doughnuts scattered across the ground. In Lithuania some 40 metres of gypsum overlie a dolomite aquifer. Spain has up to 1000 metres of gypsum which has raised many problems to roads, buildings, and irrigation canals.

Dr Cooper's last slide showed a double decker bus with its rear end in a hole, and the driver's cab pointing skyward, so even public transport has its hazards, and mending a hole in the road takes on a whole new meaning. If you have entrepreneurial aspirations to start a large commercial enterprise in the Ripon area, don't go for a factory unit, supermarket, or estate of executive style homes. Build a golf course instead. You may even get a hole in one.

Stan and Beryl Budd 1st April 1999

**Field Meeting: "Introduction to Black Country Geology, the First 100 million Years".** Leaders: Graham Worton and Alan Cutler.

The field trip started with a view over Dudley and the West Midlands from Rowley Hill, which is itself a dolerite intrusion dating to the Upper Carboniferous Period. Graham Worton gave a brief introduction into the various geomorphological features visible from Rowley Hill.

We then moved on to Mons Hill, the northern part of the Wrens Nest Nature Reserve where we observed marine limestones and shale deposits from the Silurian.

At the north east side of Wrens Nest Hill we walked through a 2 metre wide trench cut by former quarry workers to view the various limestone beds. A particularly notable feature was the bentonite deposits among the nodular limestone beds indicating ash fall over Dudley during the Silurian Period (Wenlock Stage).

We then walked to the heart of the Wren's Nest where we first observed spectacular exposures of ripple marked crinoidal limestone. The extensively quarried Wenlock Limestones have revealed many fossil species, especially trilobites. After a brief fossil search, we walked south to a point overlooking the Seven Sisters Caverns, so called because of its distinctive limestone pillars, (now only five) which support the roof. Graham Worton talked about the history of limestone mining around the Wren's Nest and Dudley, and a project to reopen the underground caverns and canal tunnels as a tourist attraction.

After lunch we drove to Saltwells Local Nature Reserve, Netherton, to observe the Upper Silurian deposits present. Alan Cutler described the first exposure, seen at Brewins Bridge, which was a basalt dyke intruded into the Downtonian Sandstone. The next exposure on the canal cutting was an unconformity, with Carboniferous Coal Measure deposits lying above and at the same orientation as Red Downtonian strata of Upper Silurian Age.

We then walked south to an exposure lower down the Silurian sequence to look at the Ludlow Bone Beds, a well known fossil bed containing fish bones.

The final location was a former clay quarry, Doulton's Claypit, which is now a nature reserve. The quarry is over 30 metres deep and large rock faces are exposed as a result of quarrying revealing various beds from the Carboniferous Productive Coal Measures in a cyclothem sequence.

Phil McNerney Student. University of Sunderland.

### Exhibition: World of the Sea Dragons Dudley Museum until 4th September

Ichthyosaur, plesiosaur, pliosaur - Sea Dragons clearly defined on entry, substantiated in progression by what are indisputably incomparable fossil examples set in context by impressionistic stagecraft cast in a supporting role with auditory underwater effects, lead the visitor from the wide-angle view to the close-up of what 200 hours of top quality rescue and conservation work can do for one individual scenario of ammonites. Examples of Upper Jurassic flatfish and nautiloids followed.

What will be much less evident to so many visitors, particularly junior ones, is the display of what impressed me almost more than the finished product, namely the methodology, dedication and expertise, both professional and so-called 'amateur', which created it.

A parallel exhibition is needed to extol the achievement in shoe-string co-operation between collectors, the technical restorers like Martin Rigby and Andy Cowap, artists like Robert Nicholls, palaeontologists, Dudley Local Authority and the motive power of its front-man co-ordinator, Colin Reid. Dudley would do well to capitalise on these skills and assets in this field.

No, I'm not being O.T.T.

Colin Marriott.

(The exhibition is not to be missed. Admission is free and the gallery is open Monday to Saturday 10 a.m - 4 p.m.)

## NEWS IN BRIEF

Don't miss "Sea Monsters" now on, or the PALAEOART exhibition at Dudley museum (from 17th July to 2nd October). The latter is the first ever exhibition of professional artists who specialise in geological themes. It will feature artists' depiction of Jurassic creatures from the 19th Century to the present day. The material is truly stunning and promises to be something very special indeed.

### Welcome to new members.

Matthew Perks of Norton, Stourbridge

Adam Horbik of Cheslyn Hay, Walsall.

The Journal of Geology published bimonthly by the University of Chicago Press is now available online.

Ann Nicholds has passed on to me the programme of the East Midlands Geological Society, The "Legger" bulletin of the Dudley Canal Trust, and the newsletter of the Friends of the Black Country Museum (Mining group). Look out for these on display at our indoor meetings or ask me for details.

Please note: Items which members wish to bring to the attention of the committee at the committee meeting which will be held in early July should be received by the Secretary before the end of June. More active membership would be very much welcomed. Offers of help would be much appreciated.

Welcome home to Sue Fairclough. The news is excellent. Sue is now home, taking walks, gaining strength and resuming household duties! She managed to attend Gordon Giltrap's guitar concert at MAC where the second half was dedicated to her and Bob. Many members of BCGS were at the concert to celebrate.

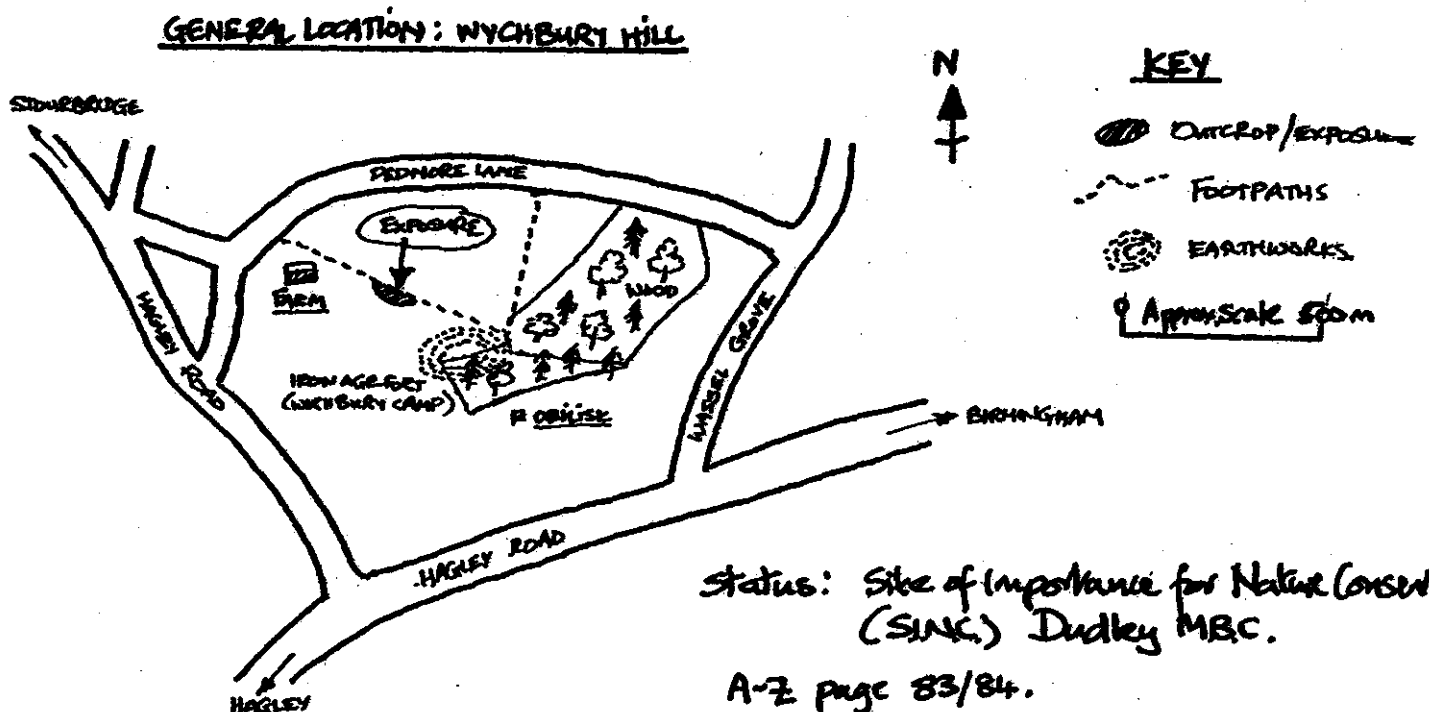
## CONSERVATION COLUMN

By the time you read this, a group of us will have been to Hay Head Quarry, Walsall to clear a few exposures for the

geological trail that we are helping to set up there. Hay Head may not be well known to members but it is a wonderful site and worthy of a visit if you have a spare hour or two. I thought an interesting addition to this column might be a Black country "site of the month" as a means of introducing to a wider audience some of the lesser known "windows on time" with which the Black country is so bountifully endowed.

### Black Country Geological Site No. 1 : Wychbury Hill.

A short walk along the footpaths from Pedmore Lane (GR SO 922 822) or Pedmore Hall Farm track (GR SO 915 822) takes you up a steep hill towards Wychbury Camp, an Iron Age Camp and obelisk. The hill is a classic hogback shape formed of hard red breccias (sedimentary rocks with angular fragments in a finer matrix of red clays and silts) of Permian Age (The Clent Breccias) These are exposed in the footpath to the Fort in a low cutting (GR SO 917 821). They are thought to represent a scree or talus slope of broken rock forming at the foot of mountains which existed to the south of the area in Permian times. A walk up to the summit of the hill is rewarded by the impressive earthworks of the Iron Age Fort in the trees and open views across the Black Country valleys and hills and the surrounding countryside.



### World Heritage

As you will be aware, for some unknown reason, the Wrens Nest / Castle Hill bid was not short listed by our government to be put forward as a World Heritage site despite a written response in support of the bid from more than 80 organisations and senior geological officials of 16 different countries. Every cloud has a silver lining however, and I am happy to report that at Dudley's Heritage Forum Colin Reid was given full approval of committee to approach UNESCO directly with respect to establishing UNESCO GEOPARK or GEOSITE status for the bid area.

Collections Dudley Museum, in association with I.T. Services (Information Technology) of Dudley MBC. are currently developing a new data base to improve cataloguing and information searches on the borough's geological collections. This is being done as the previous systems are not year 2000 compliant. Many other provincial museums may be facing similar situations and the database may have commercial applications. The Heritage Lottery fund is also being approached by the Museum to fund a collections assistant to help with the update of geological records.

Until next time

Graham W.

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I/We would like to attend the Quiz and Social on SATURDAY 11 SEPTEMBER at 8.00 pm. at "The Lamp Tavern" Dudley. Questions will be Geological, General and Trivia. There will be no buffet (eat before you come ) but plenty of ale!

I, (Name)----- wish to register a team (4 or more people) called -----  
 ----- and enclose a cheque for £5.

The people in my team are

-----  
 -----

OR Name(s)-----  
 I/We would like to attend, am not part of a team, but would like to take part on the night and enclose £1.25 per person

OR Name(s)----- I/We would like to attend as observer and enclose £1.25 per person

My address is-----

----- Tel-----

Send cheques made out to Black Country Geological Society to Catherine Eales, 26 Yarnborough Hill, Oldswinford, Stourbridge, DY8 2EB