



The  
Black  
Country  
Geological  
Society

# NEWSLETTER No. 156

## DECEMBER 2002

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 at Dudley Museum, St James's Road, Dudley.  
Phone (01384 815575)  
7.30 for 8 o' clock start unless stated otherwise.**

**MONDAY JANUARY 27<sup>th</sup> 2003.** Lecture: Professor Derek Siviter. "Silurian Soft-Bodied Fossils." (Note date re-arranged since last newsletter)

Professor Siviter was born in Wolverhampton, and went from the former Darlaston Grammar School to the University of Leicestershire where he gained his B.Sc. and Ph.D. He spent his postdoctoral fellowship at Trinity College Dublin, and spent some time with the Nature Conservancy Council, followed by 10 years at the University of Hull. He has been Assistant Curator of the Geological Collections and Reader in Earth Sciences at the University of Natural History, Oxford since 1988. He researches Early Palaeozoic arthropods and has discovered some remarkable fossils from the Silurian, and the Cambrian of China.

Professor Siviter uses the latest 3D computer imaging to describe a spectacular deposit of soft-bodied fossils in Herefordshire. The 425 million year old worm like fossils are preserved as calcite crystals within hard nodules. The fossils have proved to be 3-dimensional with amazingly fine details. By grinding away 30 micron thick slices of the fossils, and photographing each exposed surface, a 3D image of the fossil is created in a computer.

**MONDAY FEBRUARY 24<sup>th</sup> 2003.** Lecture: Robert Smallshire "Oil Exploration in 4 dimensions"

Robert Smallshire is Senior Development Engineer and Structural Geologist at Midland Valley Exploration, Glasgow.

This lecture will describe how recent advances in computer modelling of strata have been used to assist in the search for new oil reserves.

*Chairman*  
G.J. Worton B.Sc., C.Geol.,  
F.G.S.

*Vice Chairman*  
A. Cutler B.Sc., M.C.A.M.,  
Dip.M., M.CIM.

*Hon Treasurer*  
S. Fairclough B.A., PGCE.

*Hon Secretary*  
S.H. Worton B.Sc., PhD.,  
F.G.S.

*Meetings Secretary*  
G.W.J. Hensman B.Sc.,  
F.R.Met.S.

*Field Secretary*  
A. Rochelle B.A. Hons.,  
Tech.RICS.

Using computer technology, a geological cross-section can be manipulated to systematically unfold folds, unfault faults and strip off sediments to effectively travel back in time and understand how geological structures formed. Using high quality reflection seismic data this can be extended into 3 dimensions. By creating a 4-dimensional geological model ( space and time ) structural restoration can be used to predict oil migration paths, rock-fracture patterns and the location of high quality reservoir rocks at different times.

### **MONDAY 31<sup>ST</sup> MARCH 2003. ANNUAL GENERAL MEETING 7.30pm**

Followed by AGM guest speaker Vic Smallshire, Chairman of Dudley Canal Trust, who will talk about, "Holes in the Ground," a fascinating personal account of his 28 year journey into some of the largest, weirdest and most obscure man-made excavations in the U.K.

### **MONDAY 28<sup>th</sup> APRIL 2003.** Lecture: Adrian Collings and Tom Lawson "The Birmingham Northern Relief Road"

The talk will explain and illustrate how the design of the new motorway was affected by the geology found along the route. They have some fascinating photographs, both aerial and ground, of the new exposures along this controversial Motorway.

### **SPRING FIELD MEETING 2003** Aberystwyth to Borth Coastal Geomorphology. Led by Andrew Rochelle

It is proposed to hold a field visit to the Aberystwyth area of Wales on a Saturday in Spring 2003 to comprise a geomorphological walk from Aberystwyth to Borth, a distance of about 6 or 7 kilometres. The walk gives the chance to see raised beaches, stacks, caves, wave cut platforms, spits and bars and glacial till as well as some spectacular folding in the sea cliffs. Direct trains from Birmingham, Wolverhampton or Telford are the proposed method of transport, leaving Birmingham at about 8.30am and arriving at Aberystwyth at about 11.30am.

As this is further afield than our recent trips and involves rather more walking than most, we'd like to find out initially if there is sufficient interest from the membership to make the trip viable. Please see Andrew at the January meeting or contact him on Tel. 01952 299136 or email: [cft-wrochelle9@supanet.com](mailto:cft-wrochelle9@supanet.com). Alternatively write to the secretary at the address in 'Contact Us'.

## **EDITORIAL**

Happy christmas and an exciting and prosperous new year to all our members and friends of the society. 2002 has certainly been a very busy geological year. Not only have we been 'earthquaked ' in the Black Country but we've had the first Rock and Fossil Festival and Fair for many years, renewed our display material and even seen the rise of funding available for geological site conservation through the appearance of the Aggregates Levee Sustainability Fund. As we come to the close of the year applications are being drawn up for works associated with the Seven Sisters Caverns at Wrens Nest and Barrow Hill/Tansey Green Claypit Pensnett. We've also seen a revamp of the website for the society at our new address [www.bcgs.info](http://www.bcgs.info) which is well worth a visit. Out there in the world of geology there has been a huge amount of work going on in many fields of research and discovery. I have noticed quite a press interest in the origins of life this year and we have seen the excitement mount about 'beagle 2' the new Mars mission which will search for signs of life on the red planet. I have no doubt that 2003 will continue in the same vein and there will be many surprises and controversies ahead.

The committee would like to say a particular thank you to those members who have helped in the organisation and running of the conservation work and the rock and fossil events this year. The importance of these events to the local (and national) geological and heritage communities cannot be understated.

## **NEW MEMBERS**

### **A very warm welcome to the following new members:**

Ananda Shamo

## REPORTS

**MONDAY 28<sup>th</sup> October 2002.** lecture - Dr. Ian Sutton of Nottingham University " Yellowstone – Its Evolution and Geology"

Several Society Members have been to the Western USA on Dr.Ian Sutton's various geological tours, so it was a particular pleasure to welcome him to speak about one of the most spectacular features of the area.

Dr.Sutton started by placing Yellowstone in its geological setting. It is situated over a 'hot-spot' in the Earth's mantle and this is responsible for the many geothermal features - geysers, hot springs, hot pools, mud volcanoes and fumaroles - which are such a spectacular feature of the area. The hot-spot is fixed in position, while the American Plate moves in a south-westerly direction, so that over geologic time there have been several stages of eruption in the area, culminating in the main eruption 600,000 years ago. This was a truly massive event delivering some 900 cubic miles of material, compared for instance with the 1980 Mt.St.Helens eruption which, though it seemed large at the time, only gave about 0.3 cubic miles.



This main eruption created a large caldera 20-40 miles across, so that the Yellowstone area is relatively young, and is surrounded by much older strata.

Turning now to the visible features of Yellowstone National Park, the most memorable are the large number of geysers, particularly 'Old Faithful' (*photo GW from trip in 1994*) which erupts regularly every hour or so, and Echinus Geyser which shows particularly well the complete sequence of a geyser eruption.

A GEYSER is formed when ground water percolates down into heated strata, but because of the pressure at depth the water does not boil. Eventually the water becomes superheated and begins to rise up to ground level, and the consequent reduction in pressure causes almost explosive boiling of the water, erupting a water column 50 or more feet high. When most of the water has been expelled, the water column collapses, and the 'recharge' phase starts with the water disappearing down the hole, ready for the whole sequence to start again. A complete geyser cycle may take anything from less than an hour to several days.

Another spectacular feature is the GRAND CANYON OF YELLOWSTONE, a 1200 ft deep valley caused by rapid weathering of the valley sides due to hydrothermal fluids rising from depth and rotting the rhyolite strata. The chemical content of fluids in the weathering process has caused bright colours - reds, yellows and browns - in the valley sides while where the rock was more resistant there are impressive waterfalls in the Yellowstone River flowing through the Canyon.



Most of the hot springs in Yellowstone are siliceous, but in one area the springs flow through limestone strata, giving rise to the MAMMOTH SPRINGS, (*photo GW from trip in 1994*) which are hot lime-rich springs resulting in the dramatic Mammoth Terraces of composed of calcite deposits. The appearance of the terraces is always changing as new material is deposited and existing material is removed by weathering or solution.

Finally Dr.Sutton speculated on the geological future of Yellowstone. There was still considerable activity in the area - there was an earthquake of 7.1 intensity in 1959 with 15ft vertical movement which caused a large landslide and dammed the Madison River. Also there are two domes in Yellowstone showing gravity anomalies and low velocity of P-waves, which are rising at the rapid rate of 1.0 - 1.5 cm/year, and this may indicate possible future events.

Perhaps there is a magma chamber below them but in any case it would be much smaller than the original giant of 600,000 years ago, so local residents should not worry too much !

This was a stimulating lecture about a very interesting geological area, which was shown by the large audience who came to hear Dr.Sutton speak. Our thanks to him for a rewarding evening.

Paul Shilston

## **CONSERVATION COLUMN**

### **Black Country Sites – Some dilemmas in caring for heritage**

You may have noticed that its been a fairly quiet sort of a year on the fieldwork end of things for our local sites. We've done a little recording and collecting from a few temporary exposures but our focus this year has been promoting our sites at events like the rock and fossil festival and discussion and planning future projects to make sure that we are as effective as we can possibly be where effort is needed most. There is some very important and tricky geoconservation work on the horizon at Wrens Nest and Barrow Hill. We need to be ready to respond when projects come on line in 2003 as their potential benefits or losses outweigh any work we might be doing on trails or exposure clearance.

At Wrens Nest we have been involved in some brainstorming about the design of stabilisation works aiming to protect and enhance geological features here following recent collapses at the Seven Sisters. This is a particularly sensitive set of issues which link the mining, geology, wildlife and local community interests in a pretty complex staged engineering and heritage project. There are many partners in this project with English Nature and the Local Authority taking leading roles. A side issue but a very important one is the emergence of great interest in this site and the adjacent Castle Hill from English Heritage who would seemingly like to see both become scheduled Ancient Monuments for their human history and archaeology as well in due course.

Great! you may be thinking because of the clout that an organisation like English Heritage can bring to the conservation argument. But....there are potential conflicts that are already beginning to result in unfortunate and politically motivated press related to collecting at such sites. Basically the geological attitude to geological sites is a pragmatic one of allowing close study and responsible collecting of what is after all a continually degrading resource because of natural processes. The archaeological attitudes are more towards what is effectively a total ban on public collecting and limiting study by appointed professionals only. I believe that we have much work and a great deal of talking to do before we agree and resolve all of the important issues here. However we are at the heart of these matters and the potential benefits are considerable and should ultimately allow many of our members to roll their sleeves up on some formal rescue and salvage collecting days in the years ahead. I will tell you much more about this in the next edition of the newsletter in February.

At Barrow Hill and Tansey Green the issues are no less complex. Here they are due to the proposals for the routing of the Western Orbital Relief road which, while tangled in complex planning and environmental issues, promises a mixture of benefits and losses to nature conservation in the area. Here we are preparing a fairly substantial bid to the Aggregates Levee Sustainability Fund to open up access to the old quarries with a network of footpaths and viewing platforms accompanied by interpretive panels and leaflets. Discussions with officers of the local authority are advanced, public consultation is ongoing and a bid should be submitted in early 2003 with works to begin as soon as practical after this. Here again there will be opportunities for members to get involved in the planning and interpretation of this project as well as collecting and recording when the work begins.

### **Dudley Museum Update**

As you know last year we had to sort out a dry rot issue which resulted in the loss of our award-winning Time Trail geology gallery. In response we have been looking at various schemes to re-establish world-class geological galleries at Dudley. The initial designs were for a relatively large area (2 galleries) of the downstairs area of the museum. We initially had a working title of 'The Deep Time Exploration Project' for this scheme. At the end of 2002, new ideas and opportunities have arisen and we are currently discussing much bigger plans to hopefully modify the entire

building including the installation of a lift connecting all floors and much better environmental controls in all areas. From the outset the geological perspective has been to update the story of the ancient past as we now understand it using some of the latest technology as well as the best of traditional display formats. What we would really appreciate to help us to make sure that we do the best we can with this refit is **your thoughts and comments**. Please let us know what you think would be good to have in this new facility (or what you wouldn't like to see there!). I will keep you informed of how this progresses.

### ***The Black Country Geology and Mining information Project***

One of the most exciting projects that we have initiated from the museum in the last couple of months sprang from the observation that there is very little easily available and plain english information relating to the geology of the Black Country and the mining in specific parts of it. This spawned a collaborative project between officers of the Black Country Boroughs, the BGS and other organisations and individuals to produce something that fills this gap. At the moment the working group is looking into the possibilities of producing a website and interactive map which will provide a simple background to the geology and mining in the Black Country boroughs. In the fullness of time the map will be backed up by a series of publications including pamphlets, booklets and leaflets which will go into greater detail of mining history, local geology and so on.

### ***The BCGS Collection***

Since the Rock and Fossil festival in September there have been no additions to the BCGS collection at the museum. So I thought I'd take this opportunity to show you a couple of other pieces from the collection as it stands.



*Reference samples from each of the sites  
Visited in survey works in the last few years*



*Specimen of the chain coral halssites from  
the Coalbrookdale Formation Wrens Nest*

If you do have any important samples from sites that no longer exist or simply want to make sure that the quality samples that you have find a caring home for the future then do consider adding them to the BCGS collection at the museum and get in touch.

Until next time.....Graham W

## **CONTACT US**

Hon. Secretary:  
Sarah Worton  
158 Oakham Road  
Oldbury  
B69 1QQ  
Tel 01384 235946

Editorial Team  
Dudley Museum and Art Gallery  
1 St James' Road  
Dudley  
DY1 1HU  
Tel 01384 815574  
Or email (note new address):  
[graham.worton@dudley.gov.uk](mailto:graham.worton@dudley.gov.uk)

BCGS Website now at [www.bcgs.info](http://www.bcgs.info)

## ANNUAL GENERAL MEETING 2003

Notice is hereby given of the twenty eighth Annual General Meeting of the  
BLACK COUNTRY GEOLOGICAL SOCIETY

To be held at Dudley Museum at 7.30pm Monday 31<sup>st</sup> March 2003

### AGENDA

1. Apologies for absence
2. Minutes of the AGM held on 25<sup>th</sup> February 2002
3. Statement of accounts and Treasurer's report
4. Chairman's annual report
5. Election of officers and committee
 

a) chairman	e) meetings secretary
b) vice chairman	f) field meetings secretary
c) treasurer	g) three committee members
d) secretary	h) auditor
6. Any other business

### Current members:

Chairman:	Graham Worton	Vice-chairman:	Alan Cutler
Treasurer:	Sue Fairclough	Secretary:	Sarah Worton
Meetings:	Gordon Hensman	Field Meetings:	Andrew Rochelle
Members:	Barbara Russell	Alf Cole	Mike Williams
Auditor:	Martin Normanton		

All posts are honorary and available for re-election. Nominations may be made to the secretary or declared at the AGM.

## SUBSCRIPTIONS 2003

Your next subscription is due on 1<sup>st</sup> January 2003. Subscriptions can be paid at the January meeting or sent to the treasurer:

Mrs Sue Fairclough, 7 Pool Street, Woodsetton, Dudley DY1 3SN

SUBSCRIPTION RATES:	Individual	£15	per annum
	'Family'	£20	per annum
	Full time student	£5	per annum
	Group/Company	£30	per annum

Please enclose the slip below -----

NAME ADDRESS

Telephone:

**Email Address** (please print clearly):

I would like to receive my newsletter by email YES/NO

I/we enclose £..... for Individual / Family / Student / Group membership (please circle) Date:

Cheques should be made payable to THE BLACK COUNTRY GEOLOGICAL SOCIETY