



NEWSLETTER NO. 98 APRIL 1993

Lecture meetings are held at the Saracens Head, Stone Street, Dudley, 7.30pm for 8 o'clock start

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.

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 to use it when you feel it is necessary, also when a site owner makes it a condition of entry.

The Black Country Geological Society

FUTURE PROGRAMME

SATURDAY 3RD APRIL. Guided visit to Lapworth Geology Museum, Birmingham University. Presented by Dr. Paul Smith, Curator.

Meet 10.00 a.m. at Lapworth Geology Museum, School of Earth Sciences, University of Birmingham, Edgbaston, Birmingham. Use the entrance from the Campus Ring Road. DO NOT use the entrance near the Clock Tower as it may be locked on a Saturday morning.

The Lapworth Geology Museum at Birmingham University has been nominated by the Government as one of five national geology collections (the others are Cambridge, Oxford, Glasgow and Manchester). This was chiefly because of the excellence of its collection and as a result it has received extra funding for Museum staffing, and for storage and cataloguing facilities.

Dr. Paul Smith was appointed to the academic staff as Curator in 1990 to implement these developments. He will give Society members a guided tour of the collection, and will also bring out specimens not normally on display. The visit will last about two hours.

SATURDAY (note Saturday) 8TH MAY - Field meeting to quarries in the Machen area about 5 miles east of Newport, Monmouthshire, South Wales.

Joint meeting with Cheltenham Mineral and Geological Society.
Leader: Neville Hollingworth.

It is planned to visit Cwm Leyshon Quarry (grid ref: 212869) and Machen Quarry (grid ref: 222887).

Meet 9.30 - 10.00 am at Cwm Leyshon Quarry (grid ref: 212869). To reach it leave the M4 motorway at junction 28, take the A4072 for about 1 mile to its junction with A468. Follow the A468 west for 3 miles, turn off at a sign "LOWER MACHEN". Take the first left turning then follow this minor road southwest for 1 mile and Cwm Leyshon Quarry is on the right.

Chairman

A. Cutler B.Sc., M.C.A.M.,
Dip.M., M.C.I.M.

Vice Chairman

G. J. Worton B.Sc., F.G.S.,
A.M.I.Geol., M.I.Env.Sci.

Hon. Treasurer

Mrs J. Shilston

Hon. Secretary

P.D. Shilston M.A., C.Eng.,
F.I.E.E., M.I. Mech.E.

SEE THE MAP ELSEWHERE IN THIS NEWSLETTER.

The quarries are in the South Wales Carboniferous limestone. Their main interest is in the mineralisation which includes galena, barytes, hemimorphite (calamine) and other minerals.

SPECIAL NOTE. Machen Quarry is a working quarry and access will only be guaranteed a few days before the meeting. If access is not possible the whole meeting will be CANCELLED. Those planning to go should 'PHONE GRAHAM WORTON on 0384 213207 a day or two before to check on the position.

All visitors must have hardhats (see note about hard hats elsewhere in this newsletter).

FRIDAY 11TH - SUNDAY 13TH JUNE. Birmingham University School of Continuing Studies weekend field meeting to Castleton, Derbyshire.

Leader: Dr. Derek Gobbett.

This weekend will study "tropical reefs and deltas" of the Carboniferous period. One day will be spent on the Carboniferous Limestone (limestone shoals and reefs, with the added interest of some volcanicity). The other day will be on the deltaic deposits of the Millstone Grit, which now outcrop as spectacular gritstone edges.

Acommodation at Peak National Park Centre, Losehill Hall, Castleton, Derbyshire. Cost (tuition and full board) £129.

This is NOT a BCGS event, but is organised by Birmingham University, School of Continuing Studies. It is led by Dr. Derek Gobbett, who is a Society member.

Details and bookings: The Enrolment Secretary,
 Residential Courses and Study Tours
 School of Continuing Studies
 University of Birmingham
 Edgbaston
 Birmingham B15 2TT
 'phone: (021) 414 5605.

MONDAY 14TH JUNE. Lecture: "The Grand Canyon" by Dr. Trevor Ford of Leicester University.

Dr. Trevor Ford lectured to the Society last October on 'Blue John' and now his subject will be one of his other special interests - the Grand Canyon. Dr. Ford has made several visits to the Grand Canyon and has led a number of white-water rafting trips down the Colorado River through the Grand Canyon - so we will see the canyon from above and below!

SUNDAY 27TH JUNE. Field meeting to Clee Hills. Leader: David Gossage.

Meet 10.30 am in the car parking area opposite the Victoria pub, Clee Hill village (grid ref: 595753, OS Landranger maps 137 and 138). The parking area is on the south side of the A4117 Bewdley-Ludlow road, just on the Ludlow side of the cattle grid.

David Gossage writes: The Clee Hills are made up of some 1100 metres of sedimentary rocks of the Old Red Sandstone, topped by thin representatives of marine Carboniferous rocks and Coal Measures with intrusive dolerites.

We shall examine landforms and exposures of rocks typifying this part of the stratigraphic sequence (age 310-420 M years) in south Shropshire.

David Gossage, who is a Society member, graduated in geology at Birmingham University. He spent 32 years as a geologist with Shell International including 2 years in London, 10 years in Holland and the rest in the Middle East, North and west Africa.

SUNDAY 11TH JULY. Field meeting to Bardon Hill Quarry, Coalville, Leicestershire and Charnwood Forest.

Leader: Dr. Frank Ince (The Russell Society).

Meet 10.30 at the Quarry car park (grid ref: 446128). The quarry is at Bardon on the A50 Ashby-de-la-Zouch to Leicester road, about 6 miles south-east of Ashby.

All visitors must have hard hats (see note about hard hats elsewhere in this newsletter) and will be expected to sign an indemnity form.

The quarrying operations at Bardon Hill expose late Precambrian volcanic and igneous rocks which have been subjected to tectonic activity producing strike-slip belts, thrusts and faults. The Precambrian sequence is separated by a marked unconformity from the Mercia Mudstones of Triassic age and at this junction there is a range of copper minerals.

After visiting the quarry Dr. Ince will lead the party to several sites in Charnwood Forest which has many classic exposures of Precambrian rocks as well as excellent viewpoints for studying the surrounding Midlands geology.

SATURDAY 17TH - SATURDAY 24TH JULY. International Conference on Geological and Landscape Conservation. At Malvern.

The conference will offer lectures, discussion and poster sessions, and exhibitions by sponsors. Also a wide choice of field trips in England and Wales is planned.

Details from: Margaret Phillips, The Company, St. Johns Innovation Centre, Cowley Road, Cambridge CB4 4WS. 'phone: 0223 421124.

2: [AUGUST - 3RD SEPTEMBER. British Association for the Advancement of Science. 1993 annual meeting entitled "SCIENCE FOR LIFE '93". To be held at Keele University.

Details from: Sue Bramley, Science for Life '93 Office, The Darwin Building Keele University, Staffs. ST5 5BG. Tel: 0782 583373.

SUNDAY 26TH SEPTEMBER

Field meeting to quarries at Nuneaton and Bedworth.

Leader: John Crossling (Warwickshire Museum).

OCTOBER (date to be announced). Lecture by John Collier, Chairman RTZ Mining and Exploration Ltd.

SATURDAY 30TH OCTOBER. Trip through the newly opened Dudley Canal.

This will be a geological and social event of an afternoon canal trip (duration approx. 2 hours) followed by an optional meal at Mad O'Rourke's at Tipton (near the Black Country Museum).

Assemble at 2.15 pm at Tipton and leave cars there. Go by private coach to the far end of the tunnel at Netherton, travel by barge through the tunnel, and finish at Mad O'Rourkes, Tipton around 5.00 pm. A meal will be laid on there for those who want it and have booked.

The trip is open to all members and their families and friends.

FULL DETAILS AND A BOOKING FORM IN THE JUNE NEWSLETTER.

MONDAY 15TH NOVEMBER. Lecture "Silurian geology from the Pentlands to Pembroke" by Dr. Derek Siviter (University Museum, Oxford).

SATURDAY 27TH NOVEMBER. 'ROCK + FOSSIL ROADSHOW' Dudley Museum.

MONDAY 6TH DECEMBER. Lecture by David Brown (British Waterways).

MONDAY 17TH JANUARY 1994. Lecture "Black Country Building Stones" by Keith Hodgkiss.

MONDAY 21ST FEBRUARY, AGM followed by a talk "The Himalayas" by David Gossage.

EDITORIAL

Much of the success of our Society is due to members' willingness to participate in activities. Our membership serves the Society rather than expects to have things organised for it. We are now faced with an urgent request to locate rock outcrops in Walsall, Wolverhampton and Sandwell. The Society needs to know where there are sites worthy of, and requiring conservation. The task is not a difficult one. You are not required to evaluate the site, but simply to inform Graham Worton of where it is; street name and description or grid reference and description will do. Then a working party will visit the site and assess it. The assessment must be completed by the end of June. In Dudley there are 25 sites designated as S.I.N.C.S. In Walsall there are only three, Pouk Hill, Pinfold Lane Quarry and Branton Hill Quarry, Aldridge. (Hayhead and Daw End Railway cutting are S.S.S.I.s).

Better still, agree to adopt a 1km square in one of these boroughs and keep Graham informed of geological exposures within the territory and of building or development work taking place which temporarily reveals exposures.

Please, do your share: adopt a square.

Graham can be contacted at 38 Vale Road, Netherton, Dudley DY2 9HZ. Telephone no. 0384 213207.

REPORTS

'150 years of Black Country Geology - The Alternative Legacy'

Stuart Homer of the Black Country Development Corporation and Graham Worton.
Monday 18th January 1993.

This lecture in two parts sought to outline the despoilation of the landscape as a result of 150 years of exploitation and the efforts that are being made to return this land to beneficial use, to provide a better environment for local people and to entice new businesses into the area.

Graham Worton told a story of "buried treasure, greed and hope." He described the image of the Black Country as "a close knit urban community united in toil and suffering beneath a blanket of smoke and choking fumes amidst a forest of chimneys and fire breathing furnaces. A country black by day and red by night."

This image, in truth, represents the merest blink of an eye - a stain on the natural and tranquil course of the world that reflects neither the mass of time before nor, hopefully, the mass of time to follow. In a few dark centuries much of nature's 'buried treasure' was ruthlessly and inefficiently consumed, transforming the surface of the land into unsightly disarray.

A brief geological history of the Black Country described the formation of limestone, sandstone, coal, ironstones, fireclays and brickclays. The Dudley volcano followed. Much later Quaternary meltwater gravels added yet another resource to be exploited by man.

For thousands of years man used these natural gifts for his short term advantage but only in the last three centuries did activity reach a peak to be described as the Industrial Revolution. Development at such a pace could not be sustained. From a peak in the early 1800s there followed a period of decline. The closure of works and mines was accompanied by the abandonment of transport networks. Often no attempt was made to return the land to a safe or pleasant condition and dangers on the surface or below became obscured and forgotten. Typically the old mines leave problems of open shafts and tunnels and we were shown photographs of sites where holes open up in main roads and football pitches and of buildings pleasingly tilted as is the Glynn Arms at Himley.

Ash, clinker, slag, foundry sand and colliery waste are spread over much of the area. They were dumped in any convenient hollow without record or control.

The waste materials may be toxic, containing arsenic, mercury, cyanide and asbestos. Copper, nickel, zinc and boron are toxic to plants though not to humans in normal soil concentrations. Pesticides, heavy tars, oils and acid may be dangerous on contact with the skin. Acids, sulphates and chlorides may weaken concrete and phenols may pass through water pipes to taint water supplies. Many of these chemicals are harmless unless experienced in highly concentrated quantities or for very long periods of time. Sometimes the fills contain substances which burn spontaneously or ignite like phosphorus or degrade to produce methane.

How do we identify which problems a piece of land may have? Initially we can consult plans, maps and other published information. Holes may be excavated or boreholes dug to obtain soil samples or rock cores. Gases and water samples can be tested after collection from standpipes placed in boreholes. On this evidence decisions must be made about the hazards present and the methods of treatment.

Stuart Homer works for the Black Country Development Corporation, a quango set up in 1987 to regenerate some of the most abused areas in the Black Country.

He explained that two main issues to be addressed by any reclamation scheme are ground stability and contamination. The aim is to provide brown-field sites, where all major hazards to development have been removed and the site is cleared up to a standard suitable to support the proposed new use.

Instability of a site is caused either by underground mining or loose fills. With pillar and stall working roof collapse may occur long after mining has ceased, whilst long wall mining normally produce collapse contemporary with the mining. Maintenance of the canal network is complicated by collapse and subsidence.

Sixty per cent of the industrialised areas of the Black Country are mapped as filled ground, mostly loose tipped. The differential settlement of loose fill generally makes it unacceptable for building foundations. Infilled waste material is rarely inert. Colliery spoil is prone to spontaneous combustion. Organic matter in waste biodegrades reducing the bulk of the fill producing hazardous gases. Most of the fills behave like sponges, compressing when loaded and exuding unwanted liquids and gases. The fills are often contaminated by sulphates commonly associated with colliery spoil which can attack buried concrete structures and pipes. Slag and ash from iron and steel works usually contain unacceptable levels of metals toxic to plants and people. Foundry sand may contain phenolic binders which attack plastic pipes. Local Authority dumps invariably contain mixed industrial, domestic and chemical refuse and are the nastiest and most complex wastes to deal with. These contaminants readily become dissolved in ground or surface water and become mobile.

To make ground strong enough to carry the required foundation loads, rolling with a heavy roller may be adequate. Alternatively vast volumes of material may be piled on the site to squash the fill. The site of Stewart and Lloyds steelworks was improved by dropping a 20 tonne weight on to the site at regular intervals. Vibro-flotation involves placing rigid columns of crushed stone into the ground at fixed intervals. Piles may also be used to transfer loads down to competent strata.

To deal with contamination, the fill may be dug out and tipped elsewhere or may be mechanically sorted and the reusable part replaced together with clean imported material.

A case study showed how a site to be used for housing has the fill excavated to a depth of 3.1 metres; 1 metre of reusable material was replaced and overlain by 1.5 metres of foundry sand topped by 0.6 metres of clean hoggin from Bromsgrove.

The old solution to contaminated land, i.e. to cover it with clean material, is dangerous due to capillary action. Capillary movements break layers and impermeable barriers need to be incorporated. At the Tipton gas works site, heavily contaminated material was buried in a coffin area and marginally contaminated material was reburied at the base of the excavation. There are innovative techniques for removing the contaminants through washing in water or solvents or by treating with microbes.

Undermining may give rise to the need to fill up voids in mine shafts and the shaft may need capping. Alternatively the mines may need pressure grouting or may be dug out altogether in an opencast operation.

Stuart was able to illustrate many of these processes by slides of the work being carried out by the Black Country Development Corporation.

Stuart then outlined the function of the Black Country Development Corporation. Funded by £350 million of government money for 10 square miles of the worst land in the Black Country and given planning controls and compulsory purchase powers, it has ten years to achieve regeneration of the area. The brief includes revitalising the community through house building, improved infrastructure and re-education and aid to old and new industries. A Black Country spine road, a dual carriageway from West Bromwich to Darlaston is being built and there are hopes to extend it in future.

Stuart concluded with slides of completed projects including the location of the furniture store IKEA, new housing, industrial units and hotels, multi-screen cinemas and shopping developments.

Transcript of lecture summarised by K.M.A.

Report of A.G.M. Monday 22nd February 1993.

The Treasurer reported a healthy surplus of income over expenditure due to two unexpected windfalls - a donation from English Nature for RIGS work done, and profit from the sale of minerals at the Rock + Fossil Fair.

The Secretary reported a record membership of 96 and a successful year marking the 150th anniversary of the Dudley and Midland Geological Society, and of the Dudley Geological Collection.

Highlights were the 'Rowley Rag Revisited' field meeting, Colin Reid's anniversary lecture and the Dudley Rock and Fossil Fair. Conservation activity continued at a high level.

The officers of the Society have agreed to serve again but Lucy Burgess has resigned from the committee and Sue Fairclough was elected unanimously to take her place.

Anne Sutcliffe expressed her thanks, and that of many members, for the efforts of Alan Cutler in organising the anniversary field meeting.

Some changes to the constitution were made:-

"There shall be five categories of membership:-

- (a) Individual - available to people aged 18 and over.
- (b) Student - available to people aged under 18 and full time students of any age.
- (c) Family - available to all members to include their partners and children aged under 18.
- (d) Group - available to companies and organisations approved by the general committee.
- (f) Honorary - free membership available to anyone approved by the general committee and specifically to include membership for the day for all leaders, speakers and visitors to any Society event."

"Only the following persons shall be entitled to vote at the general meetings of the Society:-

- (a) Individual members - all persons.
- (b) Student members - all persons aged 14 and over.
- (c) Family members - all persons aged 18 and over.
- (d) Group members - one nominated representative from each body.
- (e) Honorary members - no vote."

N.B. The main effect of the above amendments would be to create a new membership category namely that of Honorary member. The principal use for this would be to grant membership on the day to leaders, speakers and visitors who attend Society functions. The purpose of this is to ensure that these people are covered by any insurance policy that the Society may take out in the future if that policy should be restricted to officials and members of the Society - as many are. This is particularly important for field trip leaders.

ITEMS IN BRIEF

1. Exhibition - The Seas of Siluria

At Birmingham Nature Centre, Pershore Road, Birmingham B5. 9th April - 30th September. Open daily 10-5. Admission free.

This is an exhibition of the Holcroft Collection of Silurian invertebrate fossils from the limestones of Wrens' Nest and Castle Hill, Dudley. This magnificent collection, the finest of its kind in the world, contains superbly preserved organisms including crinoids, gastropods, brachiopods, echinoderms, corals and trilobites.

This historically important collection was completed by Sir Charles Holcroft (1831-1917), Black Country iron and coal master, and great benefactor of Birmingham University.

The exhibition also includes enlarged photographs, biological and geological information and a brief historical account of the contribution made to Birmingham's heritage by the Holcroft family.

2. Welcome to new members

Cliff Corbould - Bewdley.
Ken and Barbara Russell - Wolverhampton.
Simon Harris - Taunton, Somerset.
Wulfrun College - Wolverhampton.
Mrs Anne Burton - Stretton-on-Dunsmore.
Mr and Mrs Tonkin - Codsall.

3. 'Mister Magpie' have a mineral, rock and fossil shop in the craft shops building adjacent to the car park of the Black Country Museum. They stock a wide range of minerals and fossil specimens, both UK and imported and are happy to offer members a 10% discount on all purchases.

1. Medway Mineral Fair. Saturday 19th June in the upstairs community hall, Hempstead Valley Shopping Centre, Gillingham. 10.00am to 5.00pm. Admission 50p.

Courses

University of London, Centre for Extra-Mural Studies.

Details: Centre for Extra-Mural Studies

26 Russell Square

London WC1B 5DQ

tel: 071 631 6654.

(a) 13-16 May 1993. Weekend course Dartmoor and the Bovey Valley. £35 plus accommodation and transport.

(b) 26 July - 9 August 1993. Iceland £1400 inclusive.

(c) 7-14 August 1993. Geology in Shropshire. Based as Baschurch near Shrewbury.

(d) Easter 1994. North Wales.

(e) May-June 1994. Western USA.

(f) August-September 1994. Alaska.

(g) February-March 1995. New Zealand/Hawaii.

6. Blackwell Scientific Publications Ltd. announce the publication of the Encyclopedia of the Solid Earth Sciences. It is described as a single source reference for detailed information on all modern geological terms. It is published at £99.50.
7. Colin Reid announces that the next 'Rock and Fossil Fair' will be held on 24th and 25th September 1994. Can it be bigger and better?
8. Dinosaurs Re-mania!

The dinosaurs just refuse to become extinct at Dudley Museum. Originally scheduled to finish at the beginning of February, 'Dinosaur Mania' continues to grow in popularity. Over 7,000 people flocked to the museum during schools' half term week, swelling the attendance figures to 30,000 since the exhibition began in late November. Now the museum has bowed to public demand by extending the exhibition's run until the end of 1993.

Not all the exhibits will stay on show, as a selection of the dinosaur memorabilia is scheduled to go on display at Edinburgh's Museum of Childhood in April. However all the fossil material, full sized Megalosaurus skeleton and popular interactive displays will remain. New exhibits, school workshops and a series of special events are planned from Easter and into the summer months while Steven Spielberg's latest film *Jurassic Park* promises to bring dinosaur mania to a new peak of frenzy throughout the country.

School parties booking visits to see the exhibition will receive a free Teachers' Pack with information and exercises suitable for children from ages 5-12. Dinosaur talks and 'hands-on' sessions can also be booked in advance.

For bookings contact Dudley Museum on (0384) 453575.

IMPORTANT NOTICES

1. LEGAL LIABILITY INSURANCE

Due to the difficulties in renewing the Society's public liability insurance the present policy has now lapsed before a new one can be taken out. It is hoped that this problem will be overcome shortly but for the time being members should note that the Society will not be covering them for any personal legal liability claims that may be made against them for any accidents that might occur at Society events.

Many members will already have their own personal legal liability insurance probably as part of their house insurance. Nonetheless all Society members are advised to review their own situation in the light of this information and to take whatever action they feel to be appropriate.

2. HARD HATS

The Society has a stock of hard hats which are distributed at field meetings when they are required (at quarries etc).

Recently regulations on the use of hard hats has been tightened up, with a limit on their service life, if used regularly, of 2 years. For hard hats only used occasionally and stored away from sunlight, dangerous chemicals etc., the service life can be much longer, but unfortunately the condition of the Society's hard hats cannot be guaranteed.

For this reason the Society WILL NO LONGER ISSUE HARD HATS at field meetings and advises members to PROVIDE THEIR OWN HARD HAT. They should use it when they feel it is necessary and also when the site owner makes it a condition of entry.

Hard hats can be obtained from many sources. B & Q stores sell them at £4.99.

Please see the note about hard hats and other safety equipment at the top of page 1. This note will appear regularly on each newsletter.

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