



NEWSLETTER NO. 120

DECEMBER 1996

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, Dudley. Phone: (01384) 458070. 7.30 p.m. for 8 o'clock start.

SATURDAY 11th JANUARY 1997. Birmingham University Dayschool. 10.00a.m. to 5.00 p.m. 'Sea Shells: Ancient and Modern'. Lecturers Dr. Alan Thomas and Dr. Paul Smith. At Lapworth Museum, School of Earth Sciences, University of Birmingham, Edgbaston, Birmingham. Fee £15 (concessions £10).

Details and booking : Admissions Office
School of Continuing Studies
University of Birmingham B15 2TT
phone: 0121 414 5606/7/8

MONDAY 20th JANUARY 1997. Lecture: Environmental Geology - examples from Finland and the U.K. by Dr. Roger Dackombe (Wolverhampton University).

This lecture will examine the role of geology - and in particular 'environmental geology' in determining courses of action when environmentally sensitive activities are being planned. These can include mineral extraction and development of water supply sources and geologists can point to the most suitable strategies to minimise disturbance and make the best use of available resources.

Dr. Dackombe has considerable experience of the geology of Finland and will contrast geological environmental problems there with those in the UK. The two areas have significantly different geology, there are great differences in climate, latitude and in the surface terrain and these lead to different solutions to environmental problems.

DR. ROGER DACKOMBE is Senior Lecturer in Environmental Science at Wolverhampton University and he is also involved in running post-graduate MSc courses on environmental geology in Finland and Hungary to which countries he pays regular visits. 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 IOM, he is Geological Consultant to the Manx Government for environmental questions and works with archaeologists from Liverpool University studying Manx archaeology in its geological context.

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MONDAY 17th FEBRUARY. 7.45 p.m. Annual General Meeting. (*See announcement in this newsletter*).

Followed at 8.00 p.m.. (approx.) by two short lectures by Society members who have visited the locations recently:

Easter Island by Sheila Pitts.

Geology of Gibraltar by Paul Shilston.

EASTER ISLAND is the loneliest inhabited place in the world, located deep in the South Pacific thousands of miles from the nearest landmass. It is situated over a 'hot spot' in the Earth's crust and so its origin is entirely volcanic. While its geology is of considerable interest, what makes Easter Island so special are the colossal statues of different types found widely across the island, created and erected by the islanders with only the most basic equipment.

Sheila Pitts has visited many remote parts of the globe and has spoken to the Society several times of her travels including talks on Kenya, New Zealand and the Falkland Islands.

GIBRALTAR is obviously a 'rock' and so must have geological connections and in fact it has a lot of geological interest. It is composed mainly of Jurassic limestone, some of it the right way up and some overturned, while there are many additional features including extensive cave systems developed in the limestone, ancient cliffs and wave-cut platforms eroded as the sea-level rose and fell, and the remains of sand dunes built up during strong easterly winds.

Paul Shilston visited Gibraltar a few years ago on a bird-watching trip but couldn't help looking at the geology at the same time and this talk is the result.

SATURDAY 1st MARCH. Morning visit to Wolverhampton Museum & Art Gallery to see items from the FRASER COLLECTION not normally on display. This is an important geological collection built up by Dr. Fraser who was a Victorian enthusiast. For many years it was in store at various locations in the Midlands and it is now housed at Wolverhampton, but due to lack of space only a small part of it (the display Dr. Fraser's Fossils') is normally on public view.

Meet at 10.30 a.m. at Wolverhampton Museum and Art Gallery, Lichfield Street, Wolverhampton (in the town centre).

The visit will be organised by Rosemary Roden, a geological conservator who carried out the work of rescuing the Fraser Collection from the basement of Himley Hall; she set up the children's display 'Dr Fraser's Fossils' in the Museum as well as curating the rest of the collection which is now in store.

MONDAY 17th MARCH. Lecture: Mineral exploration in Europe by Dr. Christopher Morrissey (RTZ Mining & Exploration Ltd.)

Dr. Morrissey writes: "Europe has a 500 year history of mining for metals and minerals, involving some of the largest and richest orebodies that have yet been found anywhere in the world. At present, however, only a few European countries have important mining industries of that sort and the continent attracts only a small percentage of worldwide investment in mineral exploration.

Geologically there are strong incentives for selective mineral exploration in Europe, but there is a shortage of the necessary technical services and information. Overcoming these and other problems can still be worthwhile in a region that consumes about a third of all the metals and minerals mined throughout the world."

DR. MORRISSEY is responsible for RTZ's mineral exploration in Europe but also has an advisory role as their Chief Geologist, western hemisphere. He trained as a mining engineer in South Africa and has worked as an exploration geologist in Ireland, Africa, Canada, Saudi Arabia and elsewhere. More recently he managed the exploration programme developing the Morro do Ouro gold deposit in Brazil and the Las Cruces copper deposit in Spain.

MONDAY 14th APRIL. Lecture: Evolution and extinction of Trilobites by Dr. Bob Owens (National Museum of Wales).

SUNDAY 18th MAY. Field meeting to Shropshire, Wenlock Edge and Leintwardine. Leader: Dr. Paul Smith (Birmingham University).

Meet at 10.30 a.m. at Wenlock Edge Inn (grid ref: 570963) on the B4371 road about 5 miles southwest of Much Wenlock. Preferably park at the roadside NOT in the Inn car park.

SUNDAY 8th JUNE. Field meeting to the southern section of the Malvern Hills. Leader: Eddie Bailey (Society Member).

MONDAY 23rd JUNE. Evening field meeting (5.30 p.m. - 8.30 p.m.) to Snailbeach Historic Site and Old Mine looking at the surface features with an underground visit to the mine. Snailbeach (grid ref: 380022) is about 16km (10 miles) southwest of Shrewsbury. Leader: Peter Sheldrake (Shropshire County Council, Environmental Dept.)

SUNDAY 6th JULY. Afternoon field meeting to the Ironbridge area (meeting at 2.00 p.m.). Leader: Adrian Collings (Ove Arup/Society member).

FRIDAY 12th SEPTEMBER to SUNDAY 14th SEPTEMBER. Rock and Fossil Fair at Dudley Town Hall.

SUNDAY 12th OCTOBER. Field meeting to Aust Cliff (near the Severn Bridge) and Hock Cliff near Frampton-on-Severn. Leader: Andrew Mathieson (Bristol City Museum).

REPORTS

Field trip to Alderley Edge Sunday 29 September led by Tony Browne

Alderley Edge is a S.S.S.I. rich in geological interest and now owned by the National Trust. Its Triassic rocks are bounded to the east by the Red Rock fault system. The rocks belong to the Sherwood Sandstone Group, here represented by the Wilmslow Sandstone and the overlying Helsby Sandstone Formation beyond which lies the Cheshire Plain of Mercian Mudstone. The Alderley Edge area is a horst block affected by a very complex series of faults. Associated with the faulting are mineralised veins and we saw evidence of this in Engine vein which revealed considerable traces of malachite and azurite and has yielded Neolithic flints, stone hammers of igneous erratics and evidence of Bronze Age and Roman working. A Bronze Age date for the working has been established by the radiometric dating of a wooden shovel and a Roman date from a find of bronze coins. The area was extensively mined in the seventeenth, eighteenth and nineteenth centuries and yields a variety of minerals including wolframite, pyromorphite and mottramite, a rare vanadium mineral. The mineralisation appears to be epigenetic, warm saline water from the overlying Mercian Mudstones carrying metals in solution into buried sediments.

In Old Quarry a variety of different markings could be seen demonstrating different periods of mining.

At Castle rocks the Wilmslow sandstone contains no pebbles and is interpreted as aeolian (equivalent to the upper Mottled) from studies of the matt surface of the frosted grains. An unconformity overlies it.

The highlight of the visit was a trip underground led by the Derbyshire Caving Club. We went down Wood Mine leading to twenty five miles of tunnels and adits, reminiscent of those mined by Snow White's seven dwarfs. In Helsby sandstone, the mine was surprisingly dry. Narrow low passages opened out into caverns. Once we used a chain to aid our passage down a steep drop and in other places we crawled on hands and knees. There was an abundance of malachite and azurite and in one place where water seeped through, a screen of malachite was still forming. Plenty of industrial archaeology bestrewed our way. The arched roof held firm without the need for mechanical support and we saw slickensided surfaces one of which marked the end of the excavated area. On leaving the mine the air outside felt extraordinarily warm and humid. The ore was worked by crushing, being covered with acid and the resultant copper in solution being treated with scrap iron. The iron combined with the liquid while the copper is precipitated to be taken to Macclesfield for refining.

Our thanks go to Tony Browne for a wealth of information on the history of the area and members of the Derbyshire club for a day long to be remembered.

K.M.Ashcroft.

Underground Limestone Mining in Shropshire. Lecture by Dr. Ivor Brown Monday 7 October.

The first part of Dr. Brown's Lecture concerned the Limestone Mining at Lincoln Hill, Ironbridge. Here coal, fireclay, ironstone and limestone could be obtained from one shaft which led down through the Coal Measures to the underlying limestone. As a result of faulting the steeply dipping limestone was mined near the surface on one side of the fault and beneath 30 metres of Coal Measures on the other side. Prior to the use of tramroads in the late seventeenth century, donkeys and panniers were used to move the limestone. With descriptions and photographs of the early mines, Dr Brown showed that the 'ballstones', reef mounds, were the main focus of mining for flux, the supporting pillars being left in the stratified rocks. The limestone was worked throughout the 300 - 400 ft. of the Great White Cliff.

The mines were much visited and the caverns described and painted, and early mine entrances can sometimes be traced from these pictures. By the 1850s the underground caverns were very large and visitors were entertained by special lighting effects and even a hermit. The cavities visited today are often where the roof has fallen in and in this manner the cavities move upwards towards the surface. Eventually the voids result in the crowning of the mine i.e. surface collapse, a phenomenon with which we in the Black Country are not unfamiliar. In 1901 subsidence swallowed Mrs. Page's donkey! Paste, grout and slurry have been used to fill the mines. Power station fly ash is mixed with a small percentage of cement.

The upper workings were worked as late as 1908 by the removal of the pillars, a process not unconnected with surface collapse. Gravel was used to infill these, to keep drainage open.

The mines lay close to the river Severn and it is suspected that a tunnel lies beneath the level of infilling in the lower workings and may be causing some bulging of ground.

On the west bank of the Severn towards Broseley are lime kilns and old quarries. Dibden showed mine entrances but these have not yet been found.

Some mining took place along the line of the railway to Much Wenlock near the Longville tunnel.

At Shipton an adit has been found leading to a shaft and lead and copper may have been found there.

Carboniferous limestone is mined near Wellington at the Stearways and The Hatch. The former are shaft mines and thus flooded but the workings at The Hatch are from tunnels and are thus accessible but there are few side tunnels and considerable danger.

At Lilleshall Stone Quarry pillar and stall working is a mere 15 metres deep and to protect housing, unsafe workings have been back filled.

Workings at Clee hill are twentieth century, accessed via drifts or adits.

K.M.Ashcroft

Conserving marine reptiles at Whitby Museum . Lecture by Kate Andrew on Monday 21st October.

Question - what is the connection between a toothbrush, bicarbonate of soda and a fish bowl?

Answer - a Mesozoic marine reptile.

Kate is a distinguished curator and one of a very small band of conservators. Her areas of work include such places as Canada, Dudley Museum and elsewhere, now at Ludlow. Recently, as a guest conservator she has worked on the fossil reptile collection which is housed in Whitby Museum, Pannet Park, purpose built in 1933. The responsibility for the collection of assorted museum items is that of The Whitby Literary and Philosophical Society, who approached our speaker in her professional capacity as conservator as they were concerned with the deterioration of their valuable fossil collection. In particular the wall-mounted specimens, which include five complete Ichthyosaurs, were showing signs of pyrite decay and damage due to damp conditions.

The Whitby collection contains much type material, and is therefore of national and international significance. Our speaker herself falls into this category, as there are few conservators in Britain at the present time. Her skills are called upon in many ways but we are concerned in this report with the work she is carrying out to rescue and preserve the Whitby "Saurians", all found within a ten mile radius of Whitby. Kate opened her talk with some well illustrated indications of the ten agents of deterioration. Those principally involved at Whitby included problems of saturated walls and leaking gutters, which had caused algal growths and pyrite decay. In addition, a double coating of a shellac like finish had been applied in 1933 which had darkened to a near black varnish.

A national lottery award has been received and Scarborough Council has undertaken work on the fabric of the museum walls. The problem of the leaking gutters remains but will be rectified in time. Meanwhile, what to do with the actual specimens? Because of their size, one is over 7m long, and the fact of being wall mounted, restoration work had to be done in situ. A scaffolding platform was erected and an extractor fan installed. The use of chemicals meant full face masks were worn, and hard hats were a necessity. Working conditions were uncomfortable.

The shellac like finish applied to the fossils in 1933 proved to be extremely tenacious and very difficult to remove. "Nitromors" and "Ronstrip" paint removers were used, swabbed off with an alcohol solution applied with a toothbrush. The pyrite decay was treated by the "ammonia method". Jars of the solution were hung on the walls, and a plastic sheet laid

over the area, sealed all around, and the fumes were left to finish the job. After stripping, the specimens were air abraded either with fine glass beads or bicarbonate of soda on finer areas. They were then left uncoated. Air abrading is usually carried out within a small chamber. The difficulty presented by erecting a wall mounted chamber posed problems. However, a modified fish bowl proved a suitable substitute. Any loose bones were removed, cleaned and repositioned, using a modern, easily removed polymer. Where gaps occurred in the skeletal structure, hand painted "bones" were infilled.

The renovated and restored dinosaurs were finally given a hand painted border to allow a better visual impact. They now lie proudly in their original positions, pyrite decay and other evidence of deterioration halted or removed, and good for the next 160 years. The on site restoration took 38 person weeks, plus forward planning. During May 1997 a further 6 man weeks will be devoted to the restoration and conservation of the crocodile specimen within the same collection.

As a follow-up to her talk, Kate gave us some helpful hints on storing and preserving our own personal collections, but her overall advice was "if it ain't broke then don't fix it".

Beryl Budd

EDITORIAL

On a trip to Iceland I remember being particularly puzzled by palagonite, a brown- weathering, sandstone-like deposit which was explained as having formed where volcanoes erupt under the ice. The amount of this deposit will have significantly increased after the eruption of Bardhabunga under Europe's largest icecap, the Vatnajokull. The impending resultant flooding soon faded from the news. Stories lacking in human interest do not hold the media; the area affected is very sparsely inhabited and the consequences of flooding are minimised by the efficiency of the Icelanders. No-one, I believe, in recent times, has died as a result of volcanicity in Iceland.

I wonder if there is a geological dimension to the terrible events overtaking Central Africa. Years ago I climbed the Virunga volcanoes on the Ruanda, Zaire, (it was the Congo then) and Ruanda border. Looking down through the mist at the paradise of volcanoes at my feet it appeared a veritable Eden and so it must have seemed to the conquering Tutsis who invaded the already settled, cultivator Hutus. The weathered volcanic soils were extremely fertile and on the steep slopes, the minerals washed out by heavy rains emerged lower down the slopes. The high mountains associated with the margin of the Great East African Rift caused the precipitation of heavy rain.. Thus here grew up extraordinarily high population densities, by far the highest in Africa. I believe that excessive population pressure in this formerly most fertile of regions has contributed to the slowly ticking time-bomb of this inevitable catastrophe.

CONSERVATION COLUMN

The Great Outdoors

It's almost Christmas again and we'll soon be into the New Year, so I thought it might be as well to start the new year as you mean to go on - with some fieldwork! For those of you who don't mind Ice Ages or consider yourselves to be the Arctic explorer type, why not join me at 10.30 am on Sunday 26th January 1997 (Grid Ref: 949 907). I'll have a range of possibilities for the work from canal side clearing to rock faces to fossil collecting for the Dudley Collection at the Town's Museum and Art Gallery, but we'll have to leave the final decision for the day itself when we can see how deep the snow is or whether we need an ice-breaker for the canal.

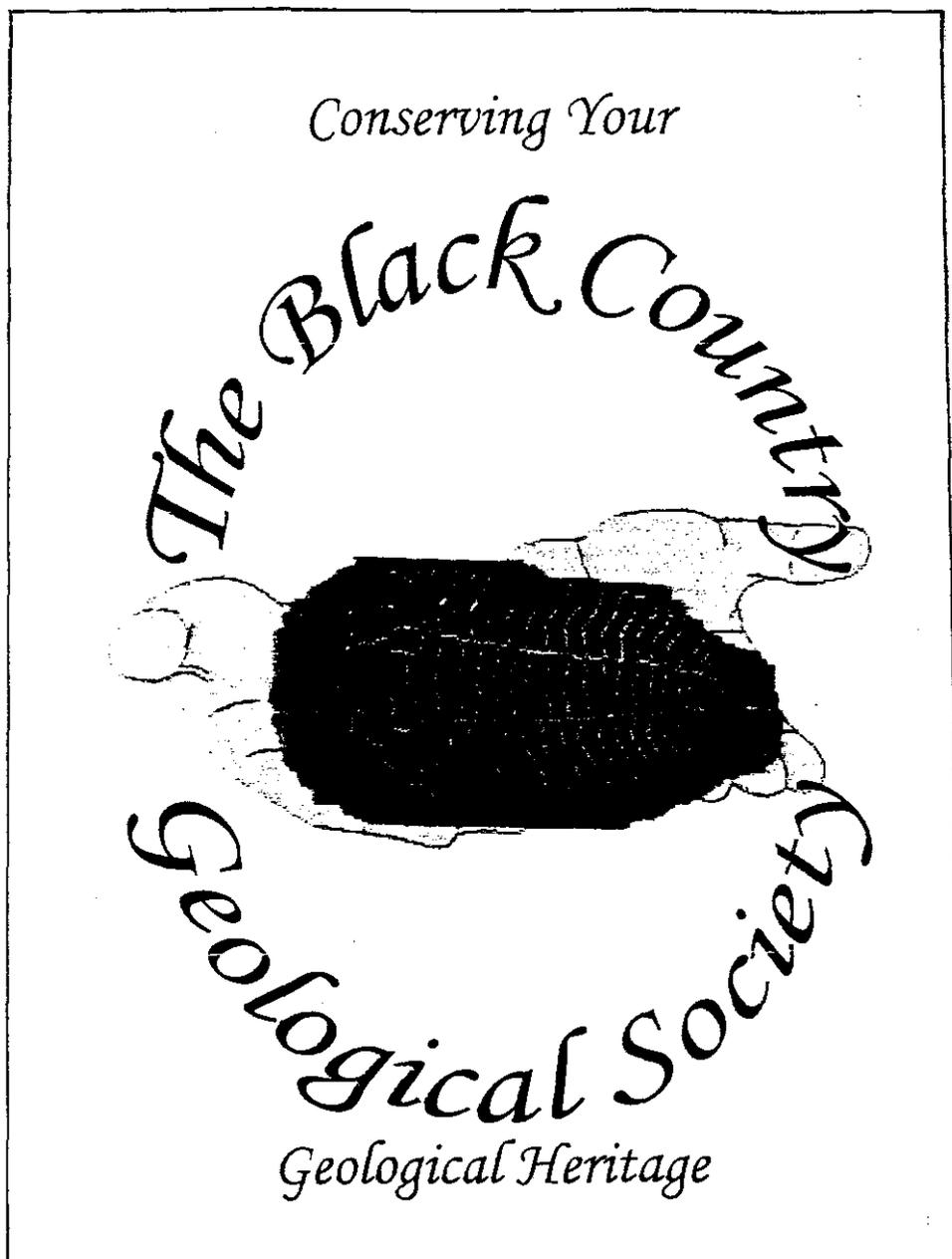
The Great Indoors

Perhaps the roaring fire and cosy festive setting of the home have more appeal in this season. Well, if they do you can also partake of a little festive conservation. Kate Andrew's lecture in October about Whitby Museum's dinosaurs reminded me that geological conservation is about the rocks and fossils we collect and treasure as well as the sites that we get them from. Why not be kind to a fossil at Christmas? Go on ... drag out your fluff covered boxes from under your beds or plastic bags from the forgotten recesses of gloomy attics and cupboards and pour some festive goodwill on your own collection. Treat your treasures to a little light, and admiring look, a gentle touch and A LABEL. They don't ask for much, but always seem to be happier when they've been named and given a place of origin that they carry around with them until they are returned to the crust, by landfill or decay or neglect at some distant point in the future when their time is gone. It's kind to the rock and it's great for conservation too.

I've a few more things to say about our rock collections in the next issue, but I'll leave this one with a response to our "Design a logo" appeal. We are very grateful to Amir Kanwar for the excellent BCGS Conservation logo shown below. Please keep them coming in.

Until next year....

Graham Worton



ITEMS IN BRIEF

1. Wanted - A new General Secretary and a new Treasurer

At the last AGM the current General Secretary and Treasurer said that they wished to give up their jobs and would not be standing for re-election at the AGM in February 1997. So we are looking for members to replace them. *Neither job requires geological knowledge.*

The Secretary's job is chiefly to look after the membership records, to address a set of newsletter envelopes every two months, to record when subs are paid, to chase up outstanding subs, and to respond to people asking about joining the Society.

The Treasurer's job is to look after the Society's accounts, to receive subscriptions, to pay out fees for room hire, leaders' and lecturers' expenses etc., and to produce the annual report and accounts for the AGM.

If anyone thinks they might be interested in either job, Paul or Judith Shilston will be happy to discuss this with them.

2. Welcome to new members

Paul Banks - Wollescote, Stourbridge

Gerard Hawley - Walsall

Gordon & Kathleen Low - Kingswinford

3. Conference at Greenwich - 15th January 1997

A wide ranging conference on 'Environmental Geology The Modern Frontier' is to be held at the University of Greenwich on 15th January jointly organised by the University and English Nature. Topics covered are: coastal management, waste disposal, teaching, the environmental geology of Gibraltar and upland recreational pressure. Further details can be obtained from Conference Administrator, Linda Murr, School of Earth and Environmental Science, University of Greenwich, Pembroke, Chatham Maritime, Kent, ME4 4AW.
Telephone: 0181 331 9807.

4. Geology Today Magazine

Geology Today is a lively magazine for amateurs and professionals with a wide range of articles, news and other items. BCGS members have a 20% discount on the annual subscription to Geology Today making our subscription for 1997 £25-50. When making or renewing subscription, members should indicate that they are BCGS members.

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