The Black Country Geological Society

No.71 October 1988

Forthcoming Meetings:

Indoor meetings are held at the Saracen's Head, Stone Street, Dudley. 7.30pm for 8pm start.

Monday 10th October - Committee Meeting.

Monday: 17th October: Lecture: "Those Incredible Limestone Mountains of S. China", by A. C. Waltham of Trent Polytechnic, Nottingham. Limestones often form Karst scenery with surface and underground features - gorges, pot holes, sink holes and caverns but in South China they are developed to a spectacular degree. There are fantastic limestone pillars in one area, known as the stone forest as well as river gorges often seen in Chinese paintings.
Tony Waltham is a lively and interesting speaker. As well as being a geologist, he is an expert on caving in limestone areas, particularly in Yorkshire, and has written several caving guides. He has travelled the world studying limestone regions and has taken part in expeditions to China, the Himalayas and Papua New Guinea (or was it Borneo) with this last featuring in a BBC TV programme.
This should be an evening of great interest to all members and especially those who ventured into the Carb. limestone caves of the River Melte valley in our September meeting.

Saturday: 29th October:

Open Day at Geology Museum, Dudley from 10am to 5pm.

Sunday: 13th November: Field meeting to Clee Hills, visiting Brown Clee and Titterstone Clee. The Clee Hills are a significant landmark of the S. Shropshire region. Rising to 1700 ft a.s.l. they are a substantial barrier to E-W and N-S routes in the area. Geologically they are composed of Devonian sediments capped by Carboniferous beds from limestone through to coal measures. Their summits show excellent exposures of the intrusive dolerite sills which cap both Titterstone and Brown Clee. Deeply excavated as road metal and with coal extraction the summits resemble old battlefields. Road stone is still extracted in considerable quantity.

This is an excellent opportunity for members to acquaint themselves with the geology of the Clee Hills, an area we have frequently passed yet not visited for many years.

Leader Tim Pearce comes from a local village and knows the area well. He is at present studying for a Ph.D on the geology of Maderia.
Meeting Place: 10.30 a.m. at Victoria Pub in Clee Hill Village on the A4117 road between Bewdley and Ludlow.

Monday: 5th December: Lecture "The Racecouse Colliery Mine" by Nigel Chapman of the Black Country Museum

(mining) group.
The mining group have been researching on the history of coalmining in the Black Country and are at present engaged on the reconstruction of a small mine simulating working conditions on the face of the Dudley thick coal. Nigel will describe these activities and update members on their progress.

Monday: 16th January: Lecture on "A mineral hunter in Ireland" by Colin Reed, Keeper of Geology at the Dudley Museum.

Monday: 13th February: AGM at 7.45pm followed at 8pm by Paul Shilston "Yellowstone and Yosemite - two great national parks."
Yellowstone and Yosemite are probably the two most attractive national parks in the USA, and they offer interesting geological contrasts as well as breath-taking scenery.
Yellowstone has a great range of geothermal features - geysers, hot springs, fumeroles, mud pots - whilst Yosemite is a large granitic area showing ice-age glaciation effects.

Monday: 13th March: Lecture: "The Channel Tunnel" by R.G.Rainford of Tarmac Construction.
Tarmac Construction are one of the partners in the Eurotunnel Consortium and this lecture will describe some of the geological and civil engineering aspects of the tunnel project and will update members on the current progress of tunnelling.

28th March - 10th April:
MURCHISON SYMPOSIUM - an international symposium of the Silurian System, held at Keele University.
It is planned to arrange a special event on Friday 31st March when the symposium has an historical outing to Dudley.

Monday: 16th April: Field meeting: "Tertiary Dykes in South Staffs.", led by Dr. David Thompson of Keele University. Joint meeting with Shropshire Geological Society.

May: Lecture to be announced.

June 12th - field trip to ICI salt mines and Jodrall Bank.

June 19th: Evening field trip: Uffmoor Wood.Woodland, wildlife and geology. leader Alan Cutler.

July 3rd: Society Bar-be-que at Oldswinford Hospital, Stourbridge.

EDITORIAL:

What have the Outer Hebrides and St. Tropez in common? Ans. - very little; apart from abundant schists, gneisses and porphories. Having spent a week in Harris in early July I can thoroughly recommend it as a geologists' paradise with almost total exposure in some areas, relatively unpicked spoil heaps and glorious, sandy, deserted beaches with blue, clear Atlantic waters. The highlights of the week were the two large pegmatite veins of Chaipaval and Sletteval where the 25 long micas are available in great quantity, and the large, garnet-bearing metabasic rocks. Our party was aided by the discovery of a WWII pick axe and sledge-hammer, ideal for enlarging weathered exposures.
Minibus mudflaps scraped all the way back to the W. Midlands!
Refusing to submit to conventional tourism, my hammer was carried south to St. Tropez and the massifs of the Maures and nearby Esterel. Viewed by the hordes as a mad-dog or Englishman, I enjoyed collecting the very unusual chlorite schists, gneisses and porphories of the region in the many rocky coves and headlands. These massifs uplifted in Hercynian times provide us with more than just the playground for European hordes. Which to visit - Hebrides or Cote D'Azur - depends on whether you prefer cagoul to suntan cream or tweed to traffic jam.
To our autumn programme - an excellent selection of varied geological interest - cast a careful eye over our events and I'm sure there's something to your tastes - put the dates firmly in your diary.
Many thanks to contributors and those who have kindly sent in cuttings from the press. Keep them flowing in.

P.S. Summer arrived in Britain just in time for our trip to S. Wales on the 17th of September. In glorious sunshine the finest of S. Wales scenery and landscape was seen by Black Country and Shropshire geologists - a great day out.

12th June, 1988: Field trip to Tissington and Carsington Reservoir:
The visit began in the beautiful village of Tissington. Dr. Neil Aitkenhead of BGS explained the setting for the formation of the local rocks. the Carboniferous Widmerpool

Formation and Tissington Volcanics. The Widmerpool Formation consists of turbidites predominantly of mud with thin limestones and Volcanics. Along the Tissington Trail we saw vesicular volcanic ash extruded subaerially. In Crakelow quarry we saw limestones with volcanic ash in pockets. The upper surface of some of the beds was eroded. Coal plant fragments indicated periods of emergence.
Exposures near Kniveton demonstrated the predominant muds with bivalves and thin limestones and lavas of the basin facies, probably the lateral equivalent of the rocks seen in Crakelow Quarry.
Later we visited the site of the Carsington Dam collapse. The Carsington Dam was built to hold a storage reservoir to take River Derwent water in winter to store for summer use. It was built for the Severn Trent Water Authority. Construction began in 1980 and failure took place on 6th June, 1984. The dam was built of local shaley mudstone. It had a bootshaped core of weathered mudstone and an earth dam of less weathered mudstone. Layers of limestone, one foot thick, were placed as blankets to stop pore pressures building up. For the most part the dam was built on head. The slip that occured was like a rotational slip between the core and earth dam. Some sliding also occured along the layer of head and some affected the core. The landslip took thirty six hours and a 500 metre length of the upstream end slipped. The head was not strong enough to support the dam. The mudstone would contain pyrite. Exposed to air, the pyrite will oxidise and produce sulphuric acid which would react with the limestone. The slope of the earth dam was too steep to be stable. Seepages came out from the drainage blankets.
BGS had done some investigation of the site in the 1970's and after the collapse BGS were called in to re-evaluate the site and design of the original dam and to advise on reconstruction.
The remains of the collapsed dam will have to be removed before rebuilding can begin. The new dam will have a gentler slope and be without the limestone drainage blankets and boot-shaped core. The core will be of clay and all the head will be removed.
Dr. Aitkenhead domonstrated the collapse with a magnificent selection of photographs and diagrams. Our thanks go to him for the excellent organisation of a splendid field day.

K. M. Ashcroft:

Contaminated land - The Next Environmental Disaster? (part 1 - part 2 follows in next issue) by Graham Worton:
None of us would question the value of soil as a natural resource. It's the medium in which we grow our food crops and found our buildings How many of us realise however the damage that has been done to the soil environment by chemical pollution from our everyday industry? or the long-term hazards that are posed by such pollution, which contaminates our land resources.
It is inevitable in a developing society that pressure will be exercised to contain development within city areas and preventing its sprawl into the surrounding green countryside. Such resolution necessitates the re-use of land which has fallen into dereliction. Often such re-use will involve a change of land use, from say a large, derelect industrial site for example Bilston Steelworks, to a more environmentally sensitive use for example a housing estate.
Often such sites retain chemical waste materials which remain as legacies and problems for the next generation of land use to solve, to return the land to beneficial use. It is only recently, since the passing and enforcement of pollution control and Waste Management Laws that the responsible control over waste materials has been statutory and prior to this much indiscriminate dumping occurred.
Clearly all manufacturing industries produce waste products in large quantities, but it tends to be the heavier industries of greater antiquity that retain the greater degree of chemical contamination in the soil. Examples of such industries are:-

Chemical works
Gasworks
Petrochemical works/oil refineries
Foundries, Metal plating works
Iron and Steelworks
Landfill sites, dumps
Metal mines, mineral processing shops
Power Stations
Sewage works.

The soil receives a "chemical load" from such industries in one of four major ways, these are:-

1. spillage

2. leakages from pipes and tanks
3. dumping or deliberate spreading
4. aerial fallout of contaminated dust.

The types of chemicals from such a wide variety of sites are similarly varied and controlled by the history of processes used on the site and the raw and waste materials handled on site. However a smaller number of priority contaminants can be drawn up from the extensive lists which are commonly occurring. Recent work by the D o E, BRE etc. has produced tables of contaminants indicating soil concentrations of each contaminant which are considered to be undesirable and unacceptable (Threshold and Action Trigger concentrations).

If a chemical analysis of soils from a site has concentrations of contaminants exceeding the Action Trigger concentration, then some form of clean-up treatment must be carried out on-site to deal with the contamination.

BCGS News:

1. Activity weekend: Peak National Park Centre, Losehill Hall, Castleton, Derbysh. "Minerals, Rocks and Fossils" 28th/30th October, 1988. Tel: Hope Valley (0433) 20373.

2. University of Bristol, Dept. of Extra-mural studies:
Geological Courses:
Dayschools and Weekends:
October 1-3 Field Geology in Shropsh.:
22nd October Geology of the Cotswolds:
28-29 October Geology of E. Purbeck:
12th November Geology of the Cotswolds:
19-20 November Petrology of Sedimentary Rocks: 3rd December Magmatism, Volcanism and Tectonic processes:
9-11 December The petrological microscope
20-22 January A Geological Miscellany
Devizes: 17-19 February A Geological Miscellany, Ilminster: 3-5 March Geology of the Dorset Coast in the Bridport Area: 5-7 May Local Rocks and Fossils.
Study Tours: 15-22 April, Geology of the Llyn Peninsula: May (10 days), Geology in Cornwall: July, Geology and Archaeology in Orkney and Caithness: September, Geology in Brittany, Geology in NW Spain: 15-24 September, Geology in W. Dingle.
Details and enrolment from Dr. Peter Hardy University of Bristol, Department of Extra-mural Studies, Wills Memorial Building, Queen's Road, Bristol BS8 1HR, Telephone: (0272) 303622/303624.

3. Ammonite Armada - exhibition on the natural history of the Frodingham Ironstone at Scunthorpe Museum 3rd September - 13th November and 28th December - 22nd Jan, 1989. 10am to 5pm, Sunday 2pm-5pm. Scunthorpe Museum, Oswald Road, Scunthorpe (0724) 843533.

4. University of Birmingham: Introduction to Geology - a weekend residential course 7-9 April, 1989 based at Bishop Mascall Centre, Lower Galdeford, Ludlow. £67.00 includes lectures, field excursions, tuition and full board accommodation. Leader Chris Sands B.Sc., PhD.

5. University of Birmingham: Courses for adults:
a) "Introduction to Geology", 12 Tuesdays from 27th September at John Willmott School and Leisure Centre, Reddicap Heath Road, Sutton Coldfield. £19.00. Run by Chris Sands B.Sc., PhD.

b) "Introduction to Geology" at College of Adult Education, Wolverhampton, 12 Wednesdays 7.30 p.m. from April 12th by Susan Childs B.Sc.

c) "Rocks, Minerals and Mines" 9-11 June, 1989. 2-day residential course at Preston Montford Field Centre. £65 inclusive.

d) "Geology and Scenery in the Marches" 11-18th August 1989 at Preston Montford Field Centre. Fee £160. fully inclusive.

e) "Geology and Landscape in the English Midlands" Chris Sands BSc PhD, 12 evening meetings plus 3 Sat. field visits 7.30-9.30 from 29 Sept. at Dept. of Geological Sciences, Birmingham University. Fee £26.

f) "Great Sea-dragons of Past Oceans" - one day course on 11th Feb., 1989 10.30-4.30 Arts faculty, University of Birmingham. Fee £10.50 including lunch.

6. "Damned Nonsense" as the career in geology of William Willoughy was described by his father the 3rd earl of Enniskillen. But he pursued his interests and became an influential figure in the early years of British geology.
A travelling exhibition produced by Ulster Museum shows how he followed his scientific interests in 19th century Ireland.

Details: 17th Sept.-30th Nov. at City Museum and Art Gallery, Stoke-on-Trent. There will also be an exhibition of Carboniferous fossils collected by John Ward, a draper from Longton, who was a keen amateur geologist in the 19th century.

FOR SALE:

1. Longer standing members will remember that a few years ago the Society produced a journal called "The Black Country Geologist". Almost aspiring to the status of a "glossy" it contained a range of interesting and erudite articles by well known local geologists (most of whom were, and still are, Society members!).

We have a few of these journals left and it is planned to put them on sale at the Society's evening meeting on 17th Oct. It is expected that they will be of particular interest to newer members who missed the opportunity to acquire a copy when the journal was first produced.

2. A year or two ago the Society produced a special range of Christmas cards for sale to members. They depicted very attractive black and white drawings of black country geological scenes and were of considerable interest not only to Society members but also to a few local firms who chose them for business purposes.

There are a few stocks remaining and these too will be on sale at very reasonable prices at the October meeting - in good time for Christmas.

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