



# The Black Country Geological Society

NEWSLETTER No. 48 - December, 1984:

Editorial:

The approach of the Christmas season reminds me that we have members who are living in distant lands. One of these, Graham Hickman, is now our most distant member, because he has just moved further towards the Holy Land than most of us ever manage.

Graham has been a member since his O-level days, then a good degree took him straight into geophysics with B.P. He has just been posted to Egypt for two years, as Acquisition Geophysicist in the Petroleum Development Egypt Branch. He sent a letter decorated with colourful pyramids at sunrise, and a camel being led by a man suitably clad for the climate. I must write and ask whether or not the man is Graham. In the meantime we send him our congratulations and best wishes for his unusual Christmas.

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Forthcoming Meetings: 1985:

Monday, 21st January: "The Future of Coal".  
Speaker Mr. K. Vowles of the C.E.G.B. At the Saracen's Head.

Monday 11th February: "Planetary Geology".  
Speaker Dr. R. Maddison of Keele University.  
At the Saracen's Head.

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SARACEN'S HEAD, STONE STREET, DUDLEY:

Unless otherwise stated, please note that meetings will be held at The Saracen's Head in future. Indoor meetings commence at 8 p.m. Field meetings will commence from outside the Allied Centre unless otherwise arranged. Those who would like lifts, please contact Nigel Bradley.

Non-members welcome.

*Chairman*  
A. Culler B.Sc., M.C.A.M.,  
Dip.M., M.Inst.M.

*Vice Chairman*  
P. G. Oliver B.Sc., Ph.D.,  
F.G.S.

*Hon. Treasurer*  
M. J. Woods B.Sc., M.Sc.,  
M.I.Geol., F.G.S.

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

*Field Secretary*  
N.G. Bradley

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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 insurance to the level which you feel appropriate. Schools and other bodies should arrange their own insurance as a matter of course.

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Programme 1985:

Mon., 21st Jan: "The Future of Coal". Speaker Mr. K. Vowles of the C.E.G.S. Saracen's Head.

Mon., 11th Feb: "Planetary Geology". Speaker Dr. R. Maddison of Keele University. Saracen's Head.

Mon., 18th March: A.G.M. Saracen's Head.

Sun., 21st April: Church Stretton field trip. Leader Andrew Jenkinson.

Mon., 13th May: Informal meeting with talk by Mr. Neil Howard on "The Himalayas". Saracen's Head.

Sun., 19th May: Field trip to North Staffordshire. Leader Don Steward.

June (date to be announced).  
Visit to Eyam mine.

Friday 5th July:  
Conversazione. An event to mark the Society's tenth anniversary.

Mon., 16th Sept: "Geology of the Midlands". Talk by Professor Hawkes of Aston University.

Sun., 6th Oct: Cotwall End. Joint field trip with Shropshire Geological Society. Leader Alan Cutler.

Mon., 11th Nov: "Geology and Soils". Talk by Dr. Margaret Oliver.

Mon., 9th Dec: "The Eye of Faith in Geology". Talk by Dr. R. Bradshaw of Bristol University

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January Committee Meeting:  
16th at The Park.

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Evening field trip to Lickey Hills:  
June 25th, 1984. Led by Paul Shilston.

Although only a few miles from the centre of Birmingham, the Lickey Hills offer an interesting range of geological exposures, while from their summits one can see many miles in every direction, picking out distant geological landmarks.

The meeting started at the car park by the golf course, visiting first the quartzite quarries of the Lickey Gorge, then moving to the overfold seen in a quarry alongside Barnt Green Road. The Lickey quartzite is of Cambrian age, and because of its hardness it has been quarried at several sites for use in construction and as roadstone. We then climbed to the top of the ridge known as Bilberry Hill, and just beyond the summit looked for the junctions of Lickey quartzite to Keele Beds, and then of Keele Beds to Bunter Pebble Beds. In this area the Keele Beds are represented as red clays, and the junction could be placed near the edge of the car park. The Bunter Pebble Beds are very distinctive with their large well-rounded pebbles, and although the exact junction could not be located, it was clear when we had crossed to the B.P.B. zone.

Crossing the Old Birmingham Road (or Rose Hill) we followed a stream up through the Keele Beds where a band of sandstone caused a step in the stream profile.

Finally we reached the top of Beacon Hill, in the Clent Breccia horizon, and as the evening was so clear it gave a complete geological view of the West Midlands - Bredon Hill (Jurassic), May Hill (Silurian), The Malverns (Precambrian), Abberley Hills (Silurian), Clee Hills (Devonian with dolerite capping), and then over to the Black Country to Barr Beacon (Permo-Trias).

For a couple of hours on a fine summers evening we had an interesting geological tour among some beautiful scenery.

Paul Shilston.

Field trip to Charnwood Forest, July 1st, 1984.  
Leader John Armitage.

The Precambrian rocks of Charnwood Forest are represented by both intrusive and extrusive rocks, and a series of sediments mainly of volcanic ash and other ejected material.

Most of these rocks were deposited as volcanic debris in shallow water, but some accumulated above sea level. The Blackbrook and Maplewell Series are basically pyroclastic but the Brand Series are epiclastic sediments. The resultant rocks are the remnants of an ancient mountain range which is today being exhumed from the softer sediments under which it was buried during the Triassic. The Precambrian (Charnian) outcrops in Charnwood Forest comprise a plunging anticline trending NNW-SSE, which has been much faulted and obscured by the overlying Triassic. All Charnian rocks show well developed cleavage.

Intrusive masses of 'syenite' occupy large areas. More correctly called diorites, they are fairly uniform and have an attractive mottled pink and green appearance. They are sometimes called Markfieldite, and are composed of quartz, alkali feldspar, interstitial quartz, plagioclase feldspar (labradorite) and hornblende.

Fourteen of us met in Markfield and set off for a local quarry in the 'syenite'. It was possible to trace the change in mineral content across the quarry, where the rocks became darker and more green. Close by we examined a roadside exposure of fine tuffs of the Slate-agglomerate Series. The rock was mainly volcanic tuff with many spectacular bombs. A good bomb horizon of rhyolitic

material with chilled margins on the bombs showed evidence of plasticity in flight.

Lunch was taken nearby at the Queen's Head in Markfield, after which we drove to Bradgate Park. Here we walked up the succession of these ancient rocks, to the annoyance of people playing rounders across the footpath. We then reached the Woodhouse Beds, dated at about 700 million years. Fossils found on the bedding planes of this fine-grained tuffaceous siltstone are probably the oldest macrofossils in Britain, and therefore quite fascinating. The main ones from these rocks are Cherniodiscus and Charnia masoni, the former possibly a holdfast for the latter. Nowadays it is thought that they are either some sort of Siphonolean Algae or Pennatulid coelenterates similar to the 'sea-pens' of present day tropical waters.

At Outwoods we stood on the same spot as a group of visiting international geologists, and surveyed the last fossil of the day. This was larger and probably a Cyclomedusa - a primitive jelly fish - from the Precambrian Ediacara fauna such as is known from Australia.

Our day finished in the cool shade of a coppice surrounding the last exposure. Mr. Armitage and our members had thoroughly enjoyed an interesting day, in very good weather.

Hilary Logan:

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The Geology of North-West Scotland:  
Illustrated talk by Anne Harrison.  
2nd April, 1984.

This meeting did not start well. Members arrived at the Allied Centre to find the room was double booked, and the opposition were already dug in. For a while I thought I was going to be able to slip away gracefully without having to give my talk. Unfortunately for me, however, Chris and Hilary were

very kind and managed to find a cosy room in a nearby pub, so at about nine o'clock the meeting began.

The Geological Survey Memoir of N.W. Scotland by Peach and Horne is said to be one of the most important ever produced. Following the discovery of the Moine Thrust in 1883, some major principles of structural geology were established. This area was the first in the world where the order of superposition was found to be reversed by thrusting. The thrust developed when the mobile nappes of an orogenic zone in the east were moving towards the more stable foreland rocks in the west. In the case of the Moine Thrust the tectonic pressure from ESE was so great that some of the forelands were also torn up and moved westwards. The mass of Moine rock on the move was thought to be 200km. long and 10-20km. deep. At certain points the Moine Thrust became stuck and so smaller thrusts, notably the Glencoul and Ben More Thrusts, developed. In most places the Moine Thrust glided over the fucoid beds but in certain places steps occur and the Thrust moved over other planes. One such place is Knockan, where the succession is well exposed. Knockan cliff is part of the Inverpolly Nature Reserve and is located on the main road between Inchnadamph and Ullapool.

Slides were shown of Knockan cliff. At the top of the cliff are dark Moine Schists which are probably Precambrian. The thrust plane is marked by a six inch band of mylonitised schist. The rock has been fragmented probably due to the tremendous forces exerted during the thrust. The Moine Schists overlie white Ordovician Eilean Dubh and Ghrudaidh limestones

and dolomites. Moving down the cliff, the next stratum of Salterella Grit is exposed. The grit, which is partly dolomite and partly quartzite, is rusty in colour and is characterised by Scolithus burrows. The next strata are the fucoid beds, which are also rusty coloured and consist of bands of shale and dolomite. The characteristic fossils of these beds are trilobites of the genus Olenellus. The beds were called fucoid because flattened worm tracks of Planolites were mistaken for seaweeds. Below the fucoid beds is the pipe rock. The pipes are actually burrows at right angles to the bedding planes and belonging to Scolithus and Monocraterion worms.

The Ullapool to Inchnadamph road is at this level. By looking across from Knockan Crag to Inverpolly Nature Reserve the remaining features of the succession can be seen, in particular the characteristic scenery of the forelands. The landscape is mainly fairly flat and consists of Lewisian gneiss. In places mountains arise sharply from the flat land. These are usually Torridonian Sandstone, which although Precambrian in age like the Lewisian gneiss, overlies the gneiss unconformably. Classic examples are Ben More, Cul Beag, Canisp and Stac Polly. All were at one time covered by Cambrian Quartzite but this has mainly disappeared. Stac Polly still has a thin layer covering its peak. The entire Assynt landscape has been affected by glaciation. Loch Broom is a classical U-shaped valley, and Ullapool which stands at its mouth is built on a raised platform which is a glacial delta.

The forelands are characterised by inhospitable, rugged scenery. Only sheep can survive. The locals depend mainly on the sea for a living. Salmon farms can be seen in sheltered coves of the Summer Isles and the sea of Ullapool is littered with factory ships. In contrast, the land to the east of the thrust is more welcoming. By the sea the limestone of the Durness group forms high cliffs and and spectacular caves but the beaches are sandy and welcoming. Those wishing to visit the area which is also renowned for its wildlife and

salmon fishing were recommended to stay at the Culag Hotel in Lochinver which is quite expensive but makes an ideal base from which to explore the area.

Anne Harrison:

Dudley Limestone Workings:  
Progress Report Three.  
(Please see summary overleaf)

In September the Council's policy committee approved a report entitled "Abandoned Limestone Workings - a Strategy for Action - the Council's Policy and Programme", which formally brought together the results of the comprehensive review of the various technical, land use and other factors relative to the abandoned workings referred to in the last newsletter.

The new canal tunnel into Singing Cavern has been completed and a trip into this cavern by the Canal Trusts boats was a great experience for me despite my familiarity with the workings. Future "canal trips" will be doubly exciting.

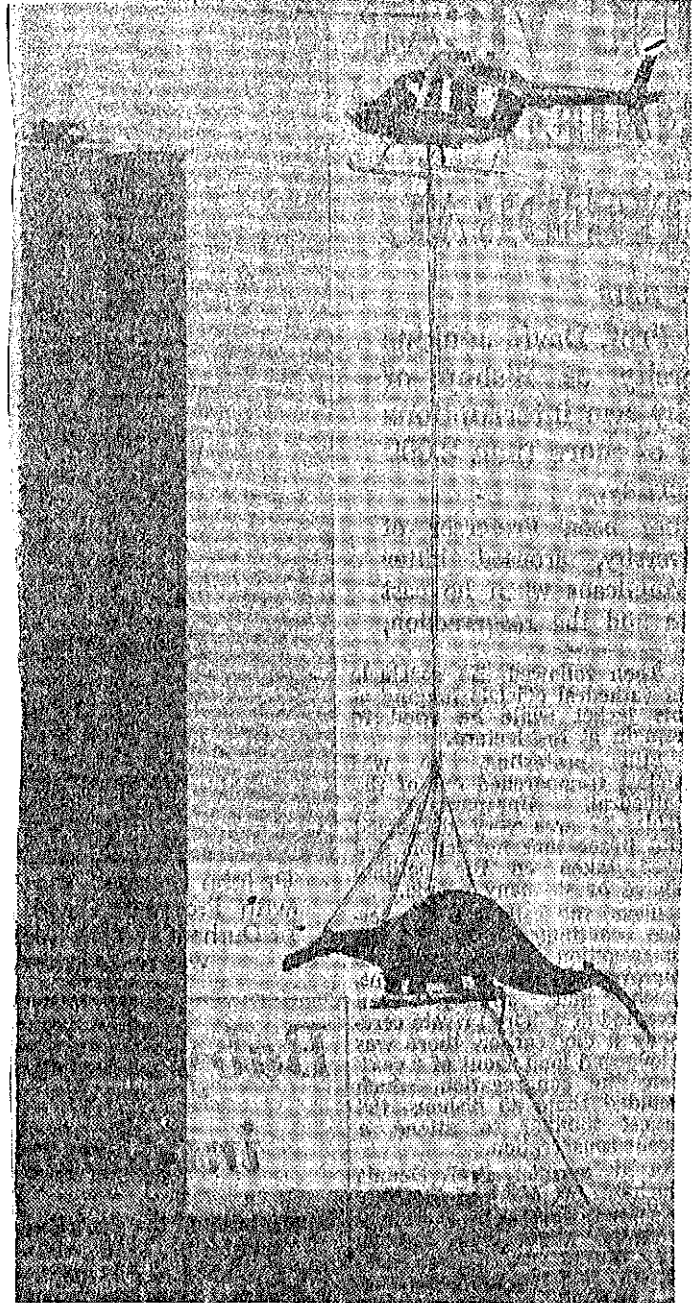
The trial infilling at the Dudley Sports Centre is likely to commence in December.

The results of the drill hole and associated investigations carried out in the first half of this year should be available shortly. Current work is in hand preparing submissions for Derelict Land Grants in line with the Strategy for Action Report.

Alan J.R. Evans:

From the Papers:

Daily Telegraph 7.7.1984:



A helicopter airlift for a life-size replica of a brontosaurus, which was being delivered to the Museum of Science in Boston.

STRATEGY REPORT SUMMARY:

1. The Council's proposals aim to have seriously tackled the West Midland Limestone problem by the end of the century, and £4 million derelict land grant will be made available for the work per annum.

2. About £18 million will be required to deal with the limestone problem in Dudley. Programmes are proposed for £7.6 million for 1985/86 until 1989/90.

3. The order of priorities are:-  
(a) safety, (b) Maintainance and beneficial use of land, (c) maintainance of confidence in the affected areas, (d) securing development and redevelopment, (e) securing changes in land use where appropriate.

4. Priorities and programmes are based on the prevailing limited information about the structural conditions of the workings. The emphasis on investigatory work in the next few years will provide improved information on these conditions as well as assisting in the design of remedial works.

5. The new information and re-appraisals of land use issues will contribute to reviews, and the Council's policy will be published at intervals not longer than three years.

6. Programmes are set out in the Report for the next five years, with some schemes carried forward to 1992.

7. The three stages to remedy the limestone problem are:-

(a) preliminary investigations,  
(b) further investigations, monitoring or no action/minimum work,  
(c) final treatment including bulk infilling, long term monitoring, modifications to structures. Later stages will depend upon the findings of earlier stages and analysis of the options available.

8. To assist in dealing with the limestone problems, central government is urged to take steps to secure:-

(a) Changes of Derelict Land Grant Legislation to ensure that grants are payable for the provision of fencing, for additional foundations and other structural costs associated with existing and new buildings, and the investigation, monitoring and treatment costs of private land owners.

(b) A government compensation scheme or insurance guarantees against damage from subsidence.

(c) The clear relevance of Building Regulation D3 to considerations of ground settlement arising from the presence of underground workings.

(d) The necessary legislation to empower the Council to enter on private land to investigate, treat, and monitor the workings.

9. The Council will maintain close co-operation with the West Midlands County Council, Sandwell, Walsall and Wolverhampton Metropolitan Borough Councils, the Department of the Environment and the Department of Transport, other public bodies and statutory undertakers, private organisations and individuals, in its pursuit of remedial measures.

The Report is now available for inspection at the offices of the Borough Engineer at Stourbridge and the Borough Planner at Dudley.

It has six main sections:-  
Introduction, Dudley's Needs and Priorities, Technical Considerations and Strategy, Land Use Planning and Building Control Matters, Assessment of Priorities, and Programmes of Works.

A large Appendix gives details of geo-technical, land use and risk issues and proposed remedial measures for each of the 28 mine areas which have been separately considered. Other Appendices cover legal liabilities of owners of land undermined by limestone workings, examples of Dudley's development control and building regulations practices in areas affected, and the method of assessment of potential for collapse.

Geological Booklists:

These have been received from:-

- (a) E. W. Classey Ltd.,  
P.O. Box 93, Faringdon,  
Oxford, SN7 7DR.  
Special list on geology,  
palaeontology, volcanology.
- (b) Stuart Baldwin, Educational  
& Palaeontological  
Reproductions, Fossil Hall,  
Boars Tye Road, Silver End,  
Witham, Essex CM8 3QA.  
Geology, palaeontology,  
natural history.

Available in bookbox.

Geology Courses:

1. London University, Dept. of  
Extramural Studies,  
26 Russel Square,  
London WC1B 5DQ.

A list of residential and  
other courses for the  
public, mostly without  
definite dates or prices  
yet.

2. University of Bristol,  
Dept. of Extramural Studies,  
Wills Memorial Building,  
Queen's Road,  
Bristol, BS8 1HR.

- (a) Building stones of the  
Dorchester area.

Sat. March 2nd. £5.00.  
At Hardayes School,  
Dorchester O84 002 SJ.

- (b) Quarries & Cliff Sections  
in Dorset. O84 003 SJ.

Sun. March 3rd. £5.00.

- (c) Crystallography. B84 H11 SJ.

Jan 19 and 20. £10.00  
Queen's Building,  
University Walk, Bristol.

- (d) Igneous Rocks and  
Mineralisation S. Cornwall.

Based on the Lizard.  
March 7-10th. B84 960 SJ.  
£65.00 inclusive of travel  
and bed & breakfast.

- (e) Minoans and Santorini.

Early May 1985. One week.  
Geology and archaeology.  
Details on request.

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New Magazine: "Geology Today".  
To be launched in January, 1985.  
Regular diary feature, events  
throughout the country. Bi-  
monthly. Blackwell Scientific  
Publications,  
Osney Mead,  
Oxford, OX2 0EL.  
Price not quoted.

Field Secretary:

Nigel Bradley,  
11 Leicester Close,  
Warley,  
West Midlands, B76 5NJ.  
Tel: 021-429-8833.

Hon Secretary:

Paul Shilston,  
16 St. Nicolas Gardens,  
Kings Norton,  
Birmingham B38 8TW.  
Tel: 021-459-3603.

John Easter,  
27 Fairlawn Drive,  
Kingswinford,  
West Midlands DY6 9PE.  
Tel: 27-4916.

Editor:

Sheila Pitts,  
17 The Pear Orchard,  
Northway Farm,  
Tewkesbury,  
Glos. GL20 8RG.