



The
Black
Country
Geological
Society

NEWSLETTER NO. 83 OCTOBER 1990

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.

FUTURE PROGRAMME:

MONDAY 15TH OCTOBER

Lecture : "Silurian RED beds - a geologist's view of
the USSR"
by : Dr. David Siviter
of Leicester University.

The lecture will be 70% geology and 30% travelogue
of various parts of the USSR including Moscow and
Leningrad. The Silurian geology in the lecture is
chiefly in Estonia and in the Ukraine, and will show
some connections with the Silurian on our own home
ground at Dudley.

Dr. Siviter has been to the USSR several times and
will be there again this summer. He has visited
many regions including the Baltic States, Siberia
and Soviet Central Asia.

SUNDAY 28TH OCTOBER

Field meeting to Black Country sites.
Leaders : The British Geological Survey team:-
Dr. J.H. Powell (team leader)
Dr. B.W. Glover
Dr. C.N. Waters

Meet: 10.00am at the entrance to Ibstock Brick
Company quarry, Tansey Green (grid ref: 900902). It
is about three miles west of Dudley town centre on
the B4175 (Stallings Lane).

Wellington boots are advised and hard hats must be
worn - bring your own if you have one, otherwise the
Society's stock of hats will be available.

Itinerary

The field meeting will study late Carboniferous
sedimentation in the western part of the south
Staffs coalfield.

Chairman
A. Cutler B.Sc., M.C.A.M.,
Dip.M., M.Inst.M.
Vice Chairman
J.E. Gollidge M.A.
Hon. Treasurer
Mrs J. Shilston
Hon. Secretary
P.D. Shilston M.A., C.Eng.,
F.I.E.E., M.I. Mech.E.

(continued)

In the morning it will examine new exposures in the topmost Productive Coal Measures and the lower part of the Etruria Formation, including volcanoclastic deposits, in the Tansey Green area. Changes in the sedimentary regime from paralic Coal Measures through to red-bed palaeosols of the Etruria Formation will be demonstrated in brick-pits in the area. Recently discovered volcanoclastic deposits, with well preserved plant stems and associated dykes of tuff and alkaline basalt, illustrate the onset of Variscan deformation in Etruria Formation times.

In the afternoon the party will visit exposures of the Enville Formation, near Gospel End, which exhibit a variety of fluvial bedforms and sedimentary structures; the petrography, provenance and palaeogeography of late Carboniferous strata will be outlined.

MONDAY 19TH NOVEMBER

Lecture : "The Hornsleasow dinosaur excavation and sieving project"
by : Roger Vaughan of Bath Museum.

Hornsleasow quarry (also known to geologists as Snowhill quarry) is near Broadway in Gloucestershire. It is a working quarry and in 1987 an amateur geologist noticed several huge dinosaur bones which had been exposed by the quarrying. He alerted the staff at Gloucester City Museum and a major site investigation was carried out, excavating the large bones and sieving the clay for smaller items.

Roger Vaughan played a major part in this enterprise, which recovered much fossil material - vertebrae, limb and girdle bones of a large sauropod dinosaur as well as many teeth and bones of smaller dinosaurs, lizards, crocodiles and small mammals.

FRIDAY 30TH NOVEMBER

15th Anniversary Dinner, with speaker.
At the University Centre, Birmingham University.

The dinner will be an informal social function in the Hampton Room at the University Centre.

In addition to Dr. Beverly Halstead, the society has invited two other well known local geological personalities to help us celebrate this occasion.

It would be helpful if members and friends could purchase their tickets before the end of October to assist with the planning.

MONDAY 14TH JANUARY 1991

Lecture : "Britain underground". Caves, caving and geology
by : John Smith, Dudley Caves Rescue Team.

This talk will cover cave systems in many parts of Britain, including South Wales, the Mendips, Forest of Dean, Derbyshire and the Yorkshire limestone country. It will also describe the extensive underground stone mines near Bath, the source of much of the building stone for that city.

John Smith is an enthusiastic caver with over 30 years experience. He has a great collection of caving photographs and will show many of these, as well as describing his experiences in some tight corners.

MONDAY 25TH FEBRUARY

AGM followed by "Geology in paradise" a talk on the Hawaiian Islands by Paul Shilston.

Paul was in Hawaii in 1989 and will describe the Hawaiian Islands with their stunning scenery as well as their fascinating geology. Situated on a moving plate above a 'hot-spot' they show the whole range of volcanic features from active eruptions to old cones eroded down to sea level.

March : Lecture - (to be arranged).

SUNDAY 15TH APRIL

Field meeting to North Staffordshire.
Leader Mr. John Armitage.

MONDAY 10TH JUNE

Evening field meeting to Saltwells local nature reserve.

FRIDAY 14TH - SUNDAY 16TH JUNE

Weekend field meeting to North Devon coast.

EDITORIAL

Whilst much interest has been expressed in the 15th anniversary dinner, and we know of many members who are keen to attend, the organisation of this event requires a certain degree of forward planning. It is with this in mind that I would ask those wishing to attend to book their place or places as soon as possible so that firm numbers can be calculated by the end of the month. Although late November seems far ahead the speed with which the autumn term disappears is remarkable. Therefore, in order not to be disappointed and to help the organisers please complete your reservation as soon as you are able. A form is included in this newsletter.

"You don't get something for nothing" is a phrase often heard and in the From the Papers section there is a prime example. While we have all enjoyed a summer of Mediterranean quality, those whose homes rest upon shrinking clay beds will be wishing for a more typical British climate in future years. As insurance premiums rise to cover repair costs, those who reside in more geologically sound areas will also suffer. This however could pale into insignificance at the thought of the effects of global warming on the areas of eastern England which are below sea level; but a Dutch professor has an answer and a most interesting one - see From the Papers.

Finally, it is hoped that the government's White Paper proves to be effective in making progress towards a cleaner and conserved environment as each year more and more pollution related problems come to our attention, yet few solutions make real progress.

Field excursion to the Malvern Hills, Saturday 21st July 1990
Leader: Dr David Bullard

It was a fine summer morning as participants met below the Herefordshire Beacon.

After ascending through the impressive Iron Age earthworks which once fortified this high point on the Malvern Hills, Dr Bullard outlined the main geological features visible from the summit. Looking northwards the upstanding mass of the resistant Precambrian Malvernian rocks is seen as a north-south trending, elongated line of hills, some 8km long by 1km wide, extending to the end of the outcrop beyond North Hill. The highest point is at the Worcester Beacon, 425m.

Southwards the Malvernian continues as a sharp, narrow, more broken ridge for another 5km to Chase End Hill, 191m.

Beyond the great eastern boundary fault of the Malvern Hills is the low-lying Worcester Basin, site of the Vale of Severn, with continental Triassic and marine Jurassic strata at outcrop. The land surface there ranges mostly between 10m and 60m above sea level. Seismic evidence suggests that Malvernian basement below the Worcester Basin may in places be around 2000m deep, giving some measure of the large throw of the eastern Malvern boundary fault (Chadwick, JGS, 1985).

By contrast, the scenery and geology west of the Malvern range is dominated by sweeping wooded ridges and intervening arable valleys, corresponding respectively with marine limestones and thicker shales of Silurian age (410-435 m.y.). The land is higher than in the Worcester Basin, ranging between 100m and 200m above sea level. Looking north from the Herefordshire Beacon along the strike of the Silurian strata the familiar sequence of rock units is discernable; from the shaly Llandovery Wyche Formation, west dipping and immediately overlying the Malvernian, upwards through the Woolhope Limestone, Coalbrookdale Shales, Much Wenlock Limestone, E-ton Shales, Aymestry Limestone and on to the red marls of the Ledbury Formation.

The Precambrian Malvernian rocks themselves usually appear as small, patchy natural exposures, some of which were examined en route to Broad Down and the Giant's Cave. They consist of an intricate variety of igneous and metamorphic rocks, including diorites, tonalites, hornblendites, gneisses and schists, all considerably weathered and with some secondary mineralisation. Radiometric age determinations have indicated late Proterozoic, around 600 m.y., but the full age range and tectonic/metamorphic history of the Malvernian rocks are not entirely understood.

At Broad Down and Hangman's Hill are exposures of various lavas and pyroclastics. These belong to the Warren House Volcanics, which are Precambrian in age but are mappable as a unit distinct from the Malvernian. Contacts are unclear but probably faulted. The Giant's Cave exposure consists of spilitic lava, irregularly jointed, with some epidote veining and haematite staining, and with shadowy forms of the pillow structures characteristic of submarine lavas. Rhyolites and other more felsic lavas also occur in the Warren House Group.

After lunch Dr Bullard guided our party around the extensive quarry at the Gullet, south of Swinyard Hill. Among the complex but well exposed Malvernian rocks are schists and other foliated metamorphic rocks, intruded by dolerite dykes and diorite masses. Pink granite-like rock and crystalline quartz occur as small pods and lenses in some of the metamorphic rocks, and larger more irregular masses of pink granite appear to intrude the schists and diorites. Complex jointing and faulting are much in evidence, with some faults clearly of the low-angle thrust variety and others steep or vertical.

High at the north west corner of the Gullet Quarry a sharp contact is seen between the Malvernian rocks and steeply west-dipping marine Llandovery sediments of the Wyche Formation. At points where the actual contact surface is visible it is unconformable, grit, pebbles and cobbles of Malvernian derivation form a thin, rough conglomerate on top of a sculpted, presumably wave-eroded, surface of the Malvernian basement rocks. Brachiopod shells, crinoid debris and other fossil fragments occur in the first few centimetres of the basal Wyche Formation.

About 25m stratigraphic thickness of the Wyche Formation is exposed. It consists of well bedded grey to olive-grey siltstones and shales with calcareous layers and a few purplish coloured bands. Dips of 70° near the base diminish westwards to about 40°. Brachiopod shells, corals and gastropods are easily found and a few graptolites have been recorded. Pronounced ripple marks are visible on the upper surface of an 80cm thick fine-grained hard sandstone layer. Other features include small scale flow marking, burrows and numerous other traces probably made by small benthic organisms.

The field day ended with an examination of Cambrian quartzite a few hundred metres west of the Gullet Quarry. This formation is also in unconformable contact with the underlying Malvernian. It is coarse, quartzose, sometimes pebbly and very hard. In the few square metres of accessible exposure bedding is not easily distinguishable from jointing. Some chitinous brachiopods have been recorded here but our party found none. Clearly this formation is overstepped not far away by the much younger sediments of the Wyche Formation.

The day proved hot and sunny and the noise of the many revellers in and around the quarry pool was at times a distraction, but Dr Bullard gave us a fine sampling of Malvern geology and we are most grateful to him for his informative guidance.

DAVID GOSSAGE

B.C.G.S. NEWS

1. Bristol University

- (a) Interpreting geological maps, by R. Bradshaw.
Weekend course 9-11 November 1990. Dillington College, Illminster, Somerset. Tel: Illminster 52427 or 53875.
- (b) Geological Miscellany: V1 by R. Bradshaw.
Weekend course 15-17 February 1991. Urchfont Manor College, Devizes, Wilts. tel: Chirton 495 or 496.
- (c) Courses organised by Department for Continuing Education, Wills Memorial Building, Queens Road, Bristol BS8 1HR:
 - * Geology in Western Ireland - Connemara, Clare and Mayo
29 April to 8 May 1991.
 - * Geology of the Northumberland and Tweed basins.
9-11 May 1991.
 - * Geology in North West Scotland.
1-7 June 1991.
 - * Geology field mapping.
15-20 June 1991.
 - * Santorini: living with a volcano.
5-18 September 1991.
 - * Dinosaurs and geology in Western Canada
7-20 September 1991
 - * Ice and Fire: Geology and scenery in Iceland.
2 weeks August 1991.

2. Birmingham University

- (a) Introducing Geology: P. Toghil BSc PhD.
From 2nd October 10.30-12.30pm £20. Ten meetings at Winterbourne. Peter Toghil has recently had his work "Geology of Shropshire" published and this should be of interest to members.
- (b) Petrography: Rocks and Minerals under the Microscope.
R. Ixer BSc PhD. From 8th October, 7.30pm at the School of Earth Sciences. Ten meetings. £22.
- (c) Fossils - an Introduction to Palaeontology.
Dr C.H. Sounds. From 4th October at 7.30pm in School of earth Sciences. Ten meetings £21.

(d) Volcanoes Ancient and Modern: Products and Processes.
R. Ixer BSc PhD, W. Gaikarth BSc PhD
10am - 5pm on 17th November at the School of Earth
Sciences. £10.50. Advance enrolment necessary.
Details from:

School of Continuing Studies,
Edgbaston, Birmingham B15 2TT.

3. Durham University

Volcanic landscapes and botany of Tenerife. 2 weeks from 8th
February 1991. £459.

Landscapes and geology of Mallorca. 3-9th December 1990
£345.

Details from: Dr J.R. Senior, University of Durham, D.A.C.E.,
32 Old Elvet, Durham DH1 3HN.

4. W.E.A.

At the Polytechnic, Wulfruna Street, Wolverhampton.
The Geological Structure of Britain, by John Armitage.
10 meetings, Wednesdays at 7.30pm from 9th January 1991. £20.

5. GEOLOGY TODAY Magazine

Members who subscribe to the magazine GEOLOGY TODAY are
reminded that when renewing for 1991, members of the BCGS get
20% discount on their magazine subscription. They should
state on the renewal form that they are members.

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