



# THE BLACK COUNTRY GEOLOGICAL SOCIETY

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### Editorial

It is becoming increasingly obvious that, in order for Members to gain maximum benefit from the Society's activities, a permanent headquarters is required. The availability of Dudley Library is extremely important but there are limitations when it comes the analysis and storing of samples etc. The Society has been offered facilities at Aston University, for meetings and it is important that this offer is accepted. A permanent centre in the Black Country where a store is available, where a book and map library can be developed and where Members can meet at all times is, however, essential. The Society now looks to its Members to make all possible enquiries with the above aims in mind.

The Committee again finds itself in difficulties when it comes to secretarial assistance (typing in particular). Any Member prepared to undertake this type of work and attend committee meetings should contact one of the Officers as soon as possible.

### Wren's Nest and Mons Hill

On March 20th a very useful field trip was undertaken. This enabled Members to study carefully the new sections, on the eastern side of the hills, cut by the Nature Conservancy. Some excellent exposures exist with examples of all the lithologies typical of the suite of carbonate rocks from the Wenlock Limestone.

The party was reminded, however, of the significance of, now inaccessible, exposures such as Seven Sisters. It is important that efforts are made to conserve all these exposures where practical.

### Film Night - Thursday 21st April

After a late start due to a technical hitch. The twenty or so members (including some new prospective members) were able to enjoy two very informative colour films on Hawaiian Volcanoes, brought along by Doug Bedson.

The particular volcano studied was Kilauea, a large shield volcano situated on the eastern side of Hawaii, and the film depicted the eruption of Kilauea 1K1 one of its many vents. The gradual uplift of its lava lake came to a peak on November 14th 1959 when lava fountains burst through fissures on the S.W. slopes. These incandescent fountains lasted for just under five weeks reaching a maximum height of 1,900 feet. Together with the flare from igniting gases they provided colourful night photography.

The lava produced was very fluid and flowed for miles before solidifying. The lava flowed as a river cutting a channel as it moved with lava-flows solidified in slack regions and causing erosion in fast flowing stretches.

In January 1960 the lava flows reached the sea and rapid cooling produced glassy lavas and a cloud of steam that could be seen for miles. Finally on February 7th 1960 the floor of the lava lake collapsed some 200 feet opening up a vent into which the surrounding lava flowed back. Thus ended one of the closest observed Hawaiian eruptions.

The film showed some unusual aspects of lava flows such as the catapillar track movement of the snout where cindery, AA, lava and ropey pahoehoe lava is dropped from the surface of the lava flow and subsequently over ridden. Also the night photography showed numerous small flashes occurring in the lava flow as tree, caught up in the flow, ignited suddenly.

Members reacted slowly but it was fairly clear a second showing of both films would have been appropriate. However due to a long deliberate delay between the two films the evening was filled and so closed a very enjoyable and informative Film Night. (G.H.)

(Graham Hickman)

Associate Membership

The importance of the B.C.G.S. appears to be growing if applications for Associate Membership are an indication. The Society is pleased to welcome the following recently elected groups;

- Benjamin Priest Group Services Limited
- John Barnsley and Sons Limited
- Tarmac Construction Limited
- Duport Limited

In addition Johnson Poole and Bloomer have a longstanding membership and Wolverhampton and Dudley Brewers Limited have made a donation of £5.00.

Field Excursion to Ludlow, Sun 22nd May

About 35 members and friends were met at the old museum in Ludlow by Mr John Norton the Curator of Ludlow Museum.

After a brief look at some of the fine specimens stored at the museum and armed with copies of "Geology of the Ludlow area of the Shropshire-Herefordshire Border" by John Norton MBE, FGS, FRES, and "Mortimer Forest Geological Trail" by the Nature Conservancy Council, the group made its way to the first locality which was on private land at Downton Gorge. During the last glacial period, the River Teme was diverted by glacial deposits which forced the river to cut through hard beds of limestone, forming this very well-defined gorge. A large lake occupied much of the valley in glacial times, the shore-line of which can still be seen.

Having crossed the river we examined the Bringewood Beds which are rich in fossils especially the nautiloid *Orthoceras* and *Conchidium knightii*, a brachiopod prevalent in these rocks. A leisurely climb up the hill gave an excellent view of the gorge and several fossil specimens were examined and discussed. Mr Norton then explained the need for the reclassification of the Ludlow Group of rocks by Holland, Lawson and Walmsley in 1958 when the original divisions made by Murchison were found to be inadequate.

Then on to Leintwardine, which is built on the site of the old Roman town of Bravonium, for lunch at the local hostelry.

For a long time geologists were puzzled by the rock formations near Leintwardine but this was solved in 1962 by Dr J Whitaker who found evidence that 6 parallel submarine channels were cut and filled during early Leintwardine times. These are comparable with the heads of modern submarine canyons and contain the remains of numerous fauna including echinoids, eurypterids and the asteroids (starfish) for which Leintwardine was famous when the quarrymen used to sell them to visitors.

A brief stop was made after lunch to look East from Wigmore Moor towards the anticlinal axis to compare the relationship of topography to geological structures. The remainder of the afternoon was spent visiting numerous quarries and roadside cuttings at Mortimer Forest and Wigmore Road, following the succession from the Wenlock through the Elton and Leintwardine Beds and finishing with the Whitcliffe Beds; comparing the changes in rocks and fauna relative to the changing conditions of deposition. (E.B.)

Programme of Events

September 4th Field trip to Birch Coppice opencast site. Morning only. Meet Dudley Library 9.15 a.m. or at site (Swan Works on B4155 Pelsall Road GR 038054)

September 22nd 'An Expedition to South Georgia with the British Antarctic Survey' by T Pettigrew of Sunderland Museum.

October 6th Informal Meeting Dudley Library.

October 15th Birmingham University Geology Department Museum. Meet at the Department 2.00 p.m. Tea and biscuits.

November 15th Social Evening at the 'Old Mill', Windmill Street, Upper Gornal, Dudley, 8.00 p.m. Please book as soon as possible.

December 8th Members' Evening. 'Travels in Iceland' by Sheila Pitts. Dudley Library 7.45 p.m. Tea and biscuits 7.15 p.m.

### Report on visit to the Castleton Area

On Saturday 18th June, 1977, on a cool but dry day out amongst the Carboniferous rocks of the Peak District. It was a pity that the spare seats in the coach were not filled.

The first stop was by the Blue John caverns under Mam Tor where the broken structure of the mainly algal reef was examined and a range of brachiopods, crinoids and bryozoans found. At a stream bed location nearby we viewed a probable unconformity between the Carboniferous Limestone and the Edale shales. The Blue John for which this locality is renowned was described as being formed by the interaction of the hydrocarbons from the overlying Edale Shales and Mam Tor Beds with the hydrothermals from the Limestone. The Edale Shales formed in deep water conditions were seen to have interbedded ironstones and traces of sulphur. The fan shaped bivalve *Dumarella* was found in the crumbly shale.

The closed roadway at this point bore evidence of the crumbly structure of the Edale Shales where the bank had slipped and a section of the road had dropped about  $\frac{1}{2}$  metre.

Above the Edale Shales were the graded layers of sandstone and shale of the Mam Tor Beds. The mechanism of their formation in a large basin, by turbidity currents, was explained. Ripple marks on the underside of some sandstone layers were seen.

The Party then went by way of the Winatt Pass to the village of Castleton for lunch. For the wealthy, fluorspar ashtrays could be obtained for £25 each and all American trilobites for a mere fiver.

After lunch the party set off up the Pennine Way which followed a stream bed with individual waterfalls on each bedding plane of the Mam Tor Beds. One exposure on the stream bank showed fossil channels eroded by turbidity currents and later infilled with sand.

Further up the stream and up the succession were the Grinslow Shales which appeared to be more of a mudstone. Odd fronds were the only fossil remains in evidence. Yet further up were the Kinderscout Grits which showed as massive sandstones with embedded pebbles. At this point it was realised that the committee member who had suggested "a long walk" was still at home in bed and the party retraced their many steps.

The main feature of the trip and the reason for its success was the efforts of the party leader Peter Whitehead for his organisation and descriptive clarity. (G.B.)

### July 17th Field Meeting Aust Cliff and Hock Cliff

Despite the last minute cancellation of the coach owing to lack of support, about 18 members assembled at Dudley Museum, and travelled in convoy to the Aust Service Area on the M4. There we met our guest leader for the day Andrew Mathieson of Bristol Museum. From the service area it was but a few minutes drive to the banks of the Severn. The most impressive and imposing structure of the Severn Bridge first greeted us for the exposures at Aust Cliff lie immediately below it. The Cliff section displays the Jurassic/Triassic Junction with Kemper Marl, Tea Green Marl, Rhaetic Beds (all Trias) and Lower Lias (Jurassic) exposed. The lower lias is rather indifferently exposed at the top of the cliff but the site is the classic type section of the British Rhaetic beds. These beds are divided into Upper and Lower Rhaetic. The former consist of yellow and cream coloured limestones with clays. The lower beds are made up of slack shales and limestones in which bivalve fossils are common. The lowest of the Rhaetic Beds resting on the Tea Green Marls is the famous bone bed with numerous fish and reptile remains. Minerals in the Kemper Marls particularly gypsum and alabaster were impressive. After lunch at the village pub we travelled northwards towards Gloucester to the second site of the day Hock Cliff also on the Severn. All the beds exposed here belong to the Lower Lias, a little higher in the succession than those seen at Aust. This site can only be approached at low tide and consequently was very muddy. Nevertheless everyone collected a fair number of fossils; most popular were the large specimens of *Gryphaea* the oyster known colloquially as "Devil's Toenail", which were fairly plentiful. Some members also found ammonites generally in poor condition but those specimens which were pyritised were interesting. Occasional stem fragments of the crinoid *Pentacrinus* were also found.

We finally bade farewell to our leader at 5.00 p.m. after a most enjoyable day and just before the rain started on our way back to the Midlands. (A.C.)