THE BLACK COUNTRY GEOLOGICAL SOCIETY

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NEWSLETTER No. 17 - August 1979.

Editorial.

Members will not be surprised to learn that their committee take an active interest in the social life of the Society, as well as in the geological programme. The annual Social Evening in November has always been a success, and variety often adds to success. This year the event will leave urban surroundings and go to the woods of the Clent Hills. It will be held at the Fountain Inn, Clent on Thursday, Nov. 15th, and there will be a buffet and skittles. It will help with arrangements if members will please make their bookings as soon as possible. The approach to Fountain Inn is easy from a few yards to the west of the traffic lights at the foot of Hagley Hill. Take the left fork by Forge garage, then the left turn in front of Woodman Hotel, and proceed to Adam's Hill, Clent. There are large car parks.

FUTURE PROGRAMME.

September 27th. "The Geology of the Dumfries area" - talk by Graham Hickman. (Dudley Museum)

October 11th. Informal meeting before the next field trip. (Dudley library)

October 14th. "The Manifold Valley"- Field trip led by Peter Whitehead. Departure from Dudley library 9.30am.

November 15th. Social Evening at the Fountain Inn, Clent. (Thursday)

December 13th. "Mineralisation". Lecture by Dr. Barnes of Swansea University. (Dudley Museum)

Indoor meetings are at 7.45pm. with coffee and biscuits at 7.15pm.

New members - Long standing members may often not realise that new ones live near them. Names and towns of new members will now be put in the newsletter, then it will be easier to make them feel welcome.

April 22nd.

The Midlands Pleistocene. Field trip led by Professor Shotton.

The preliminary meeting before this trip was held on April 12th, with the discussion led by Peter Markham. We were given very interesting information on the Pleistocene as a whole, with Midlands examples.

The field excursion on April 22nd was led by Professor Shotton, previously Head of the Dept. of Geology at Birmingham University, and a recognised world authority on Pleistocene studies. The Society has always been well served by its leaders, but this field trip will be remembered as an occasion when a topic was particularly well brought to life. As one who too readily dismissed "drift" as an inconvenient cover hiding the "real rocks", I will certainly think differently in future.

The party travelled by coach, meeting Professor Shotton at Cornet's End Pit near Meriden. Here the drift is on Keuper Marl, and very near the boundary fault of the Warwickshire coalfield. The pit is in a valley filled with 30 metres of gravel. The triple series of sediments range in age from Anglian to Wolstonian, and at the top is a

lacustrine series which is part of the evidence for Lake Harrison. We were shown an ice wedge in this, and also other interesting sedimentary structures including ripples and water escapes. Erratics were mainly Bunter pebbles, and included ignimbrites from northern sources. The spectacular contorted beds at the top are evidence of post-Wolstonian permafrost.

The second site was Ryton Pit, the type area of the Wolstonian, where the history was described with the aid of splendid charts which were the result of long research in the Midlands. The sequence began with Baginton-Lillington gravels, which have yielded large mammal fossils, then Baginton sand, Thrustington till, Bosworth clays, a second chalky till, and then Dunsmore gravels, all showing the story of ice advance and retreat with change of drainage patterns. One member found a derived Cretaceous coral in flint.

After lunch in the very pleasant village of Wolston, the final site visited was at Charlcote near Stratford, where gravel is extracted from the Avon No.2 terrace. This is of late Devensian age, with radio carbon dates of 38 to 26,000 B.P. Fossils of rhinoceros, reindeer, musk ox, bison and lion have been found in it. Terrace workings cover a large area, but the deposit is only 2.5metres thick, and rests on Keuper Marl. Common derived fossils are Gryphea, belemnites, ammonites and corals. Many of these were fouhd by members, but unfortunately no hand axes appeared although the level corresponds with the Mousterian culture.

This was a fascinating day, and members were very grateful for the Professor's leadership. Many recalled his help in launching the Society by attracting a very large audience when he gave the inaugural lecture.

P.W.

June 10th.

Field trip to Masson Hill, near Matlock, Derbyshire, Leader, Dr. R.Ixer of Aston University.

The twenty members who attended were well prepared with a large handout for this thoroughly enjoyable field trip. All the rocks at Masson Hill are of Lower Carboniferous age, and the two main lithologies are limestone and extensive igneous tuffs and lavas. The succession there is:-

Matlock Upper Limestone
Matlock Upper Lava
Matlock Lower Limestone
Matlock Lower Lava

The lavas were typically basaltic with mineral filled amygdales. The outcrops here were poor, and the only exposure seen was in the Matlock Upper Lava by a small adit in Jughole Wood. These lavas are very extensive and have been traced as far as Castleton.

The palaeoenvironment of Derbyshire during Carboniferous times can be compared with present day Pacific atolls, where shallow marine reef complexes are associated with mid-plate volcanism. This results in a sequence of highly organic limestones interbedded with lavas, ashes and tuffs. Lesser eruptions deposit bentonite ash bands, called "wayboards". As similar ones are seen at Wrens Nest, Dudley, it was particularly interesting to hear of the faunal changes before and after eruption, which are caused by the changes in sea floor level.

At Masson Hill quarry (SK 285592) we saw wayboards in the Matlock Lower limestone. This formation was very dolomitised and without fossils. Later it was seen outcropping west of Jughole Wood, containing numerous fossils. Matlock Upper Limestones were not examined, but observed towards Matlock where there was a change in the topography and also opencast quarrying.

Mineralisation was a main feature of Masson Hill, and there were two types of emplacement. Void emplacement occurred where mineralising fluids

entered pre-existing caves, faults and joints. Metasomatic emplacement occurred where minerals were dissolved and replaced, and this was most common among the examples seen. Mineral-rich zones concordant with bedding are called "flats", and result from emplacement along the interfaces of beds of different permeability. Dense, poorly jointed lavas act as a barrier to migrating fluids, whereas well jointed limestones allow migration, so minerals concentrate at lava-limestone junctions.

Members collected many minerals from spoil heaps near Jughole Wood. The commonest were fluorite, quartz, barite and marcasite. There was very little galena, so the miners were not wasters!

A pleasant quarryside lunch was taken instead of the usual Sunday pint. The sun shone all day, and several members commented on the very enjoyable and instructive trip.

C.H.

THE CONSERVATION COLUMN.

by Peter Parkes.

In the May newsletter it was mentioned that the Society was represented at a national conference on geological conservation. Through this column it is hoped that Society members will be given an insight into the feelings and degree of concern that was expressed by the various representatives interested in geological conservation.

Of the many subjects covered, the dominant issue was the damaging of geological sites by geologists. Speaker after speaker expressed serious concern about the deterioration and loss of exposures because of hammering by students and collectors. The extent of this kind of "vandalism" was emphasised by one delegate while talking of a locality in Shropshire, when he referred despairingly to the stratigraphically important Ludlow Bone Bed as the "Ludlow Bone Slot". The Bone Bed has been removed to a depth of the length of one arm plus hammer.

To take some of the pressure off the classic sites, it was suggested that leaders of parties doing practical field work should make more use of secondary sites. When visiting Sites of Special Scientific Interest there should be no hammering allowed at all. It was pointed out that such sites are usually well documented, and there is no need to remove rock to prove what is already known.

There was much discussion about the need for legislation to protect Sites of Special Scientific Interest. It was suggested that a law similar to the "Wild Creatures and Plants Act" might be useful. After much debate it was decided that such laws would be difficult to implement since the onus would be on the landowner to prosecute the offenders.

Details of other subjects may be given in a future article.

The conservation group would like to emphasise that they still wish members to send in details of any temporary exposure, however insignificant it appears and however little they feel able to say about it.

GEOLOGICAL MAPPING IN ARRAN.

by Graham Hickman.

One cold Saturday morning in March, when most of the Midlands was buried under one foot of snow, a brave party of geologists set off from Leicester University for a two week mapping course on the bleak and windy Isle of Arran. Despite a strike at the docks, a ferry boat which needed repairs before the crossing and unfavourable weather conditions, we finally set foot on Arran 36 hours later.

The first week of the course was designed to give us a good insight into

the geology of the island, and involved touring all over the island looking at most of the stratigraphical horizons which outcrop there.

In the second week of the course we worked in pairs and roamed the hillsides constructing geological maps, while several lecturers tried to find us to give us helpful instruction.

Arran attracts geologists from all over the world because of its wide range of formations, and the profusion of its varied igneous rocks. Although much of the island is made up of igneous rocks, the sedimentary and metamorphic rocks belong to nine different geological formations ranging from Dalradian to Recent.

Much of the igneous activity is of Tertiary age, and upwelling magmas have penetrated tensional cracks, fissures and faults together with the intrusion of large igneous bodies, during the opening of the Atlantic Ocean.

The outcrops on Arran are very good, and owners offer open access to their land. Some coastal sections show complete successions from Old Red Sandstone through Carboniferous to the basal Permian.

The Scottish Carboniferous is quite different from that seen in central and northern England, the lowest divisions being the Calciferous Sandstone series. This is followed by the Carboniferous Limestone seies, consisting of grits, shales and sandstones, and thin limestones and coal bands. Thick olivine basalt lava flows are common within these sequences.

The Millstone Grit is poorly developed, while the Coal Measures are mainly waterlain sandstones and red shales with no trace of coal!

Arran is famous for many localities including Hutton's Unconformity. This was described in 1787 by James Hutton, a pioneer geologist, and led to the recognition and explanation of unconformities elsewhere. Arran has the world's only fossilised lightning strike or fulgarite, a star shaped pattern of fused silica occurring in Permian dune sandstones.

Arran is an amazing place for its scenery and geology, and is well worth a visit armed with the appropriate field guide.

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Items for Sale

"The Limestone Mines of Walsall" - a booklet available at 75p. at meetings, or at 90p. by post.

"Kinver Rock Houses" - booklet available at 70p. at meetings, or at 80p. by post.

Handlenses (x10) are available at £2.20 and £1.20.

All these items are available from the Hon. Secretary at 62 Red Hill, Stourbridge.

I.G.S. Memoir for Sheet 167, Dudley & Bridgnorth is now available for borrowing. A microscope and slides are available at meetings or for borrowing.