THE BLACK COUNTRY GEOLOGICAL SOCIETY

NEWSLETTER No. 22 - August 1980.

Editorial.

Having just been told the latest details of the society programme including the Social, I felt rather inadequate about describing it. Many of the little environmental factors absorbed in childhood by Black Country people can be news to such as me, a fairly recent immigrant from London. So a little editorial research took place, by telephone to a genuine Black Country friend. What was this Black Country night out?
"Oh, we've been there. It was wonderful. Never enjoyed ourselves so much. Laughed till we ached! A bostin' night out!"
"Bosting?"
"That means superb. Well, the food. We had growty pudding - that's meat with spices boiled off for stock, then groats put in and cooked for hours. I love it. My mother still makes it and we keep portions in our deep freeze. Then there were faggots and peas and jacket potatoes - I expect you'll get something similar. And the entertainment is so quick! Can be a bit down to earth at times, but earth ought to suit geologists. Oh, could we possibly come too? If there's room?"
"I'll ask. Two extra tickets."
"Well - er - four if you can. That's six with you two. Hey, do you realise you could have sold six tickets already, an' yo' caw' aeven spake proper!"

Meetings:- Anyone needing additional information about field or indoor meetings, please telephone Tim O'Mara, 3701 or John Easter, 4916 - both on Kingswinford exchange.

PROGRAMME.

September 11th."Silurian fossils" Lecture by Dr. I. Strachan of Birmingham University. The speaker's special interest is the Silurian, and as specimens from the Dudley collection will be used, the meeting will take place in the Museum (opposite Dudley Central Library)

October 2nd.Meeting before field trip.

October 5th.Field trip to the Wrekin. The geology ranges from Pre-Cambrian to Ordovician: Uriconian lavas and tuffs, Cambrian quartzites and Ordovician intrusions. The leader, Andrew Jenkinson, works part-time for the National Trust and has produced a guide to the Wrekin area.

October 30th.Meeting before field trip

November 2nd.Field trip to Lickey Hills. Leader, Mr. W. Hardy of Birmingham University. Again Pre-Cambrian volcanics and Cambrian quartzites, but a greater range of later formations; Silurian, Keele Beds, Bunter pebbles and Clent Breccia.

November 21st.Social Evening. Black Country Night Out. Faggots and peas and traditional entertainment at Robin Hood Inn, Merry Hill, Quarry Bank. £2-00 per person. Anyone with a transport problem please contact Tim O'Mara. Please book early to aid arrangements.

December 11th."South American journey Talk by Sheila Pitts, about a five month journey with two months in the Patagonian Andes. Starting in Brazil and finishing in Canada. Illustrated with slides and maps.

Indoor meetings at Dudley Central Library, St. John's Road, 7.15 pm. Non-members welcome.

New Members.

A warm welcome is extended to the following:-
Nigel Bradley of Warley,
Edna Gibbons of Walsall,
J. Hardwick of Wolverhampton,
D. Foster of Darlaston,
W.A.Turnbull of Selly Oak.

C.C. Williams has sent his subscription - but can any member please supply an address for this name?

FIELD TRIP TO THE MANIFOLD VALLEY.
Leader, Peter Whitehead.
October 14th. 1979.

The Manifold valley runs through the south-western Staffordshire part of the Peak District National Park. The party arrived at Wetton by coach and then proceeded on foot, as coaches are not allowed along the road northwards to Wetton Hill and Hartington. The various localities on the route showed the range of facies found in the Carboniferous Limestone succession, as well as some interesting tectonic features and the only copper mineralisation in the Peak District.

The first stop, at a roadside cutting opposite Thor's Cave, shows dipping beds of bioclastic limestones with chert nodules and small-scale faulting. As an exposure for getting into the habit of looking closely at rocks this one is hard to beat. At first glance it appears to be just an outcrop of simple limestone strata, but it has a complex story to tell when examined with a little care. It is interpreted as probably a fore-reef, with the material having been broken up by waves and then accumulated at the foot of a slope in slighty deeper water. The chert could well derive from sponges.

A kilometer or so to the north lies Wetton mill, which has a little cafe and provided a pleasant lunch stop but without beer! The Manifold river sinks into its bed at about this spot, depending on recent rainfall. Above the mill is an exposure of algal reef limestone, with the characteristic pillow-shaped masses piled up to make a 'knoll'. This is typical of Palaeozoic reef bodies. A few fossils occur, but the rock is mostly very fine grained and homogeneous.

Further north still, following an old mineral railway line which is now a path open to cars but not large vehicles, the party passed many small exposures of limestones but a close look was given to only a few. Just beyond the tunnel the limestones are very porcellaneous, indicating that they were formed in water less than one meter deep, which is even shallower than for oolites.

Continuing along the road to Ecton Hill, a quarry on the right shows a gentle plunging anticline in basinal limestones. Black shales and the presence of channels show that the lime muds must have been transported by underwater flows to be deposited here. A fault runs parallel to the face, and has in places given rise to strange views, since where the nearer fault block has been removed the eye has trouble in accounting for the odd apparent displacement of the fold axis.

Another roadside excavation has been made into a scree which is probably of late Pleistocene age. Angular clasts of limestones are set in a calcite cement and make a splendid breccia. Just to the north small adits and large spoil heaps show the site of the old Ecton Mill Copper Mine, and the roof of the spire on the house is a lovely green. The land is private, but with permission specimens of various copper minerals can be picked up. There are hidden shafts among the spoil, so care is needed.

Finally at the northern end of the hill by the road, Apes Tor shows very spectacular folding, with tight structures and small thrusts and stylolites. These are thought to be caused by drag along the line of the main Ecton Hill fault, which probably also provided a channel for the fluids which caused the mineralisation.

The coach met the party at the main

road, and the route back via Hartington allowed a final look at the limestones of the Peak District, which are so much more varied than may be thought from a superficial glance. P.W.

MINERALISATION. Lecture by Dr. J.Barnes of Swansea University. December 13th. 1979. (Second part - the first part appeared in the last newsletter)

Porphyry copper is associated with plate margins, usually occuring about 50 miles back from the plate edge. It is associated with the subduction or Benihof Zone. Such deposits are common in the western U.S.A. Iran, the Caucasus and the island arcs of the Pacific. Mineralisation has occured at the top of the porphyry intrusion and in the surrounding country rock. It has been suggested that meteoric water associated w ith the intrusion, moves convectionally because of the heat, and that it dissolves and transports minerals to the upper levels of the intrusion. Deposition occurs as the solutions cool and the minerals are zoned. Solutions not only move within the intrusion but also in the surrounding rock which may also become impregnated with minerals.

An alterrative theory suggests that the minerals originated in the surroundingrock, were dissolved by circulating waters and later concentrated at the top of the porphyry. The huge silver and cobalt deposits at Cobalt, Ontario appear to have resulted from mineral impregnatior by convectionally circulating fluids. The deposits occur near to a dolerite dyke and it was originally thought that the minerals originated from the dolerite. It is now suggested that fluids originating in the dolerite circulated, because of heat from the intrusion, into the surrounding rocks where they dissolved and concentrated the minerals.

Less usual mineral deposits associated with vulcanicity are relatively minor compared with copper deposits. In South Africa there is an intrusive limestone laced with copper. This type of deposit was first found to be mineralised in the 1950's, and is now called carbonatite. The material is thought to have originated in the mantle. Volcanoes probably occured above the level at which the carbonate rich material was intruded.

Another recently discovered mineral deposit is the welded tuffs in Utah, which contain nodules of beryllium with a concentration of 81%. In eastern Turkey and Cyprus copper has been mined for 7,000 years. The mineral is associated with a spreading centre between two plates. The copper is probably moving up from the mantle and then spreading laterally.

In the island arcs of Japan, rhyolite is deposited on the sea floor as pillow lavas which are rich in copper, lead and zinc. The ores are highly carbonaceous.Sea water soaked into the lavas and was warmed, then it dissolved and concentrated the metals.

In summary, metals such as gold, lead, zinc, tin, mercury and bismuth occur in small deposits in the form of veins. However the bulk of metal is not from veins but from large deposits, such as porphyry copper, or placer deposits of gold and tin. Many deposits are also associated with the sea floor and the presence of organic carbon. M.O.

WEEKEND FIELD TRIP TO SOUTH WALES. April 11th - 13th. Leaders Mr. 'Tig' Leopard and Dr. Trevor Elliott.

Saturday was spent studying the facies of the Dississippian delta of the late Namurian at Amroth on the Pembrokeshire coast. We saw silts representing situations where material has been dropped from suspension below sea level. Wave ripples were thought to be generated up to 50 or 60 meters below sea level. Immediately offshore from the main distributaries the dense flow of river sediment produced current generated laminations of alternating coarse and fine silts. Inter-distributar;

areas were represented by fine beds with goniatites, pecten and mollusc burrows. Many of the sedimentary structures posed problems of interpretation and these were discussed.

In the afternoon we looked at beds north east of Neath which were of the same age but from a shallower water, emergent environment. Plant fossils and channels were much more evident.

Sunday was spent in the Gower peninsula. We looked briefly at the continental red, oxidised sandstones of the Old Red Sandstone which form the core of the anticlines. The coarser deposits were interpreted as molasse, coarse fluviatile deposits post-dating the Caledonian orogeny, and the finer deposits represented inter-channel fresh water areas.

After lunch we descended the magnificent coastline and studied the very thick Carboniferous limestone and the Triassic neptunian dykes set into it. The day finished appropriately with a view of the Rurry inlet estuary and spit, and a discussion of research being carried out into processes operating in the estuary today and the structures being generated.

We are most grateful to our two lecturers from Swansea University who made both days so interesting and answered our questions with such patience. K.A.

Countryside Commission.

Walks organised by the B.C.G.S. include:-
Doulton's Claypit, Netherton. Meet at Chain Shop, Mushroom Green at 3pm. Sept. 7th.

Wrens Nest, Dudley. Meet at Black Country Museum car park, 3pm. Sept 21st.

Both 1½-2 hours, cost 30 pence.

"Country Otters"- shop.

597 Bristol Road, Selly Oak, Birmingham B29 6AF. Tel. 021-471-2558.
This shop is run by the British Trust for Conservation Volunteers, and sells books on the environment and conservation. The Trust runs conservation activity groups for clearing footpaths etc. and is glad to have volunteers.

Evening courses on geology.

1. The Igneous Rocks: A study of geological processes. Tutor R. Ixer BSc. PhD. of Birmingham University Extra-mural Dept. 12 meetings at Central Library, St.James Road, Dudley. Tuesdays 7pm. from Sept.30th Fee £6. For those having some previous knowledge of geology. Rock classifications volcanic and plutonic processes and economic ore deposits will be considered. The course has been planned with the knowledge of the B.C.G.S. and it is hoped that some members can attend.

2.Bilston College of Further Education, Westfield Road, Bilston, Wolverhampton, O and A-level geology, Thursdays 6.30-9pm. No previous knowledge assumed.

3.History of life on earth. Birmingham extra-mural course, 20 meetings from 24th Sept. at 7.30pm. Fee £10. Sarmans Cross Evening Centre, Solihull Road, Shirley.

Losehill Hall Study Centre. Weekend course "Caves and Limestone Landscape" Nov. 14-16th. £38 inclusive. Send deposit £5 to Principal, Peak National Park Study Centre, Losehill Hall, Castleton, Derbyshire, S30 2WB.
They also have a variety of other courses.

Eileen Bakewell :- Many members will recall Eileen, who was our first treasurer. She moved to Wales, to Northfield, Clarach road, Borth, Dyfed, but has remained a member. She sends her best wishes to all who remember her, and hopes to visit us in the autumn.

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